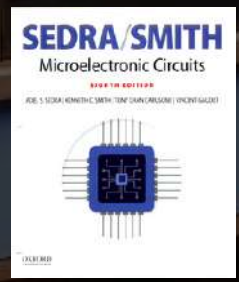
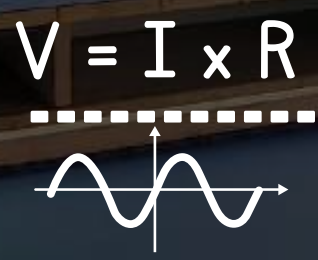
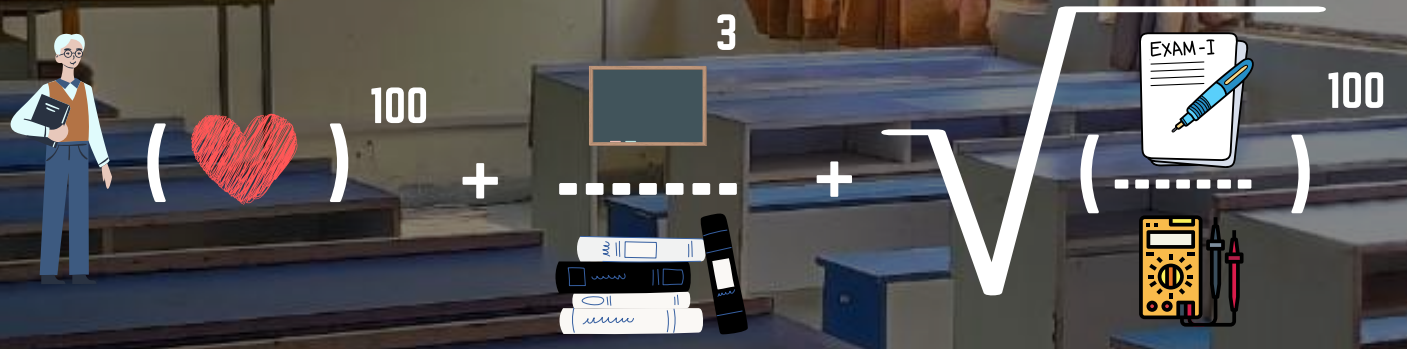


# IMPERC



MARCH ECE DEPARTMENT 2022



# = ECE

"FINALLY BACK TO COLLEGE!!"



# 7TH EDITION



## VISION

Through their dedication and accomplishment, the Department's degree holders will represent the institute and department throughout India and around the world. They will demonstrate that they are capable, sincere, and effective professionals and educators. They will demonstrate that they are caring, responsible citizens.

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Students with degrees from Electronics and Communication Engineering (ECE) Department of Heritage Institute of Technology will



## MISSION

- 1** Acquire specialized knowledge in the desired domains
- 2** Be able to analyze a problem in the given areas and be able to solve it in efficient manner.
- 3** Have confidence and knowledge to start new business activities and show entrepreneurship skills.
- 4** Develop passion for more studies and R & D.
- 5** Inherit leadership qualities for society and workplace.



## From the HOD's Desk

So, we are back to the familiar terrain. A would-like-to-forget phase has taken away almost two years from our lives. All of us, all the stakeholders, have to strive hard to make up as much as is possible.

Yet, I am very positive at some of the developments taking place in our department. We have conducted a number of FDPs, circuit making workshops have started for second and third year students, experts from industries are giving talks to the students.

Our students have been selected by Amazon for internships. A number of students are getting jobs in core companies. We continue to be NBA accredited department. We are also introducing new courses to help the students face the market more confidently.

I would like to end with a clear message to all my students. Do not ever undermine the classes and the laboratories. You will not get such platform ever in your life to learn things. Try to learn the maximum because it is your knowledge which will differentiate one engineer from another.

I also wish the editorial team of Ampere best of luck. The Ampere teams have been creating quality magazine over the years. I am proud of them.

Come pandemic, come any challenge, our Ampere will continue to perform with the same level of excellence. It is my belief.

Prof. (Dr.) Prabir Banerjee  
Head, ECE Department



## *From the Mentor*

I wish to congratulate our awesome team of editors as well as our contributors as their sheer hard work, perseverance and determination have helped the magazine to reach this place. The credit for all this goes to you all and you always mesmerize me by your work which is beyond my expectation. I hope your magazine performs even well in the future. Congratulations to you once again.

*Prof. (Dr.) Sayantani Dutta*  
*Assistant Professor, ECE Department*

# Message From the Editorial Board

We have been inspired by the overwhelming response from our contributors, as well as the encouragement of our mentors, to take this publication to a new level. It is with great excitement that we introduce "Ampere" as a platform for our department's voice, by the students to showcase their talents, as well as provide public commentary and reflections on a variety of current events around the globe. We have tried to include a variety of topics in each column. Furthermore, we have also created a social media platform where students can submit articles, feedback, anonymous confessions, and any other thoughts that they wish to make but are hesitant or too afraid to say on a public forum. We are the voice of the ECE Department, and we would love to introduce each and every one of us!

<b>7</b>	<b>ELECTROBOOM</b>
<b>20</b>	<b>SCIENCE HUB</b>
<b>33</b>	<b>SPORTIFY</b>
<b>43</b>	<b>INKED THOUGHTS</b>
<b>57</b>	<b>लिखन / लेखन</b>
<b>67</b>	<b>SHADES</b>
<b>75</b>	<b>SHUTTER</b>
<b>86</b>	<b>THE WORLD TODAY</b>
<b>109</b>	<b>MISCELLANEOUS</b>
<b>136</b>	<b>EDU-TALK</b>
<b>148</b>	<b>RECONNECTING</b>
<b>165</b>	<b>CURRENT AFFAIRS</b>
<b>168</b>	<b>ACADEMIC ACHIEVERS</b>
<b>170</b>	<b>CREDITS</b>

TABLE OF

# CONTENTS



ELECTR BOOM

# Vague Guidelines Outlining the DIY Construction of an UAV

Unmanned aerial vehicles have been around for decades, but they have achieved the greatest popularity in recent years with small commercial drones. The new so-called FPV (first person view) technology gave us a unique experience of flying and the advancement of GPS systems in drones opened a whole new world for passionate individuals.



The real challenge is to construct a drone from scratch without using a special kit. This is a complicated project, as you would have to find the necessary pieces and imagine the drone structure yourself.

To begin, we need a frame. For this we can use some light metal or plastic, which we then form into an X shape, with arms about 60cm long and 30mm wide each. On this we have to add the motors. For our purposes, we choose to use four of them and build a quad. It is advisable to use brushless motors, on which we'll attach propellers. Mostly standard 9 inch propellers are used, although carbon props might be a popular choice for higher quality.





We then need to mount the motors on the arms we have in the frame itself. Most motors come with mountings, but in case we don't have one, it is easy to drill a hole into the arms and attach the motors in there. We can also use Electronic Speed Controllers. A good place to keep them is on the lower side of the frame, and keep them secure with zip ties.

For a final step, it is better to add landing gear to reduce shock when the drone lands. These are widely available, but also easy to make if you want to keep it DIY. Using metal pipes or plastics are common and useful in this regard.



We need to buy a flight controller for the drone to take flight. There are also various open source flight controller projects like DJI NAZA, ArduPilot and OpenPilot CC3D, which will make it very easy to configure your drone and connects the flight controllers to the ESCs. Once this stage is done, your drone should be ready for testing.



Although this article outlines the vague details of building a drone, it remains the fact that due to the multitude of types of drones, component, programs, and accessories, that there are many ways to build a drone depending on the complexity of drone you are planning to make.



-Sagnik Bhowmik  
3rd Year

# INTERNET OF THINGS

## A Revolutionary Approach Towards Future Technology

### Introduction

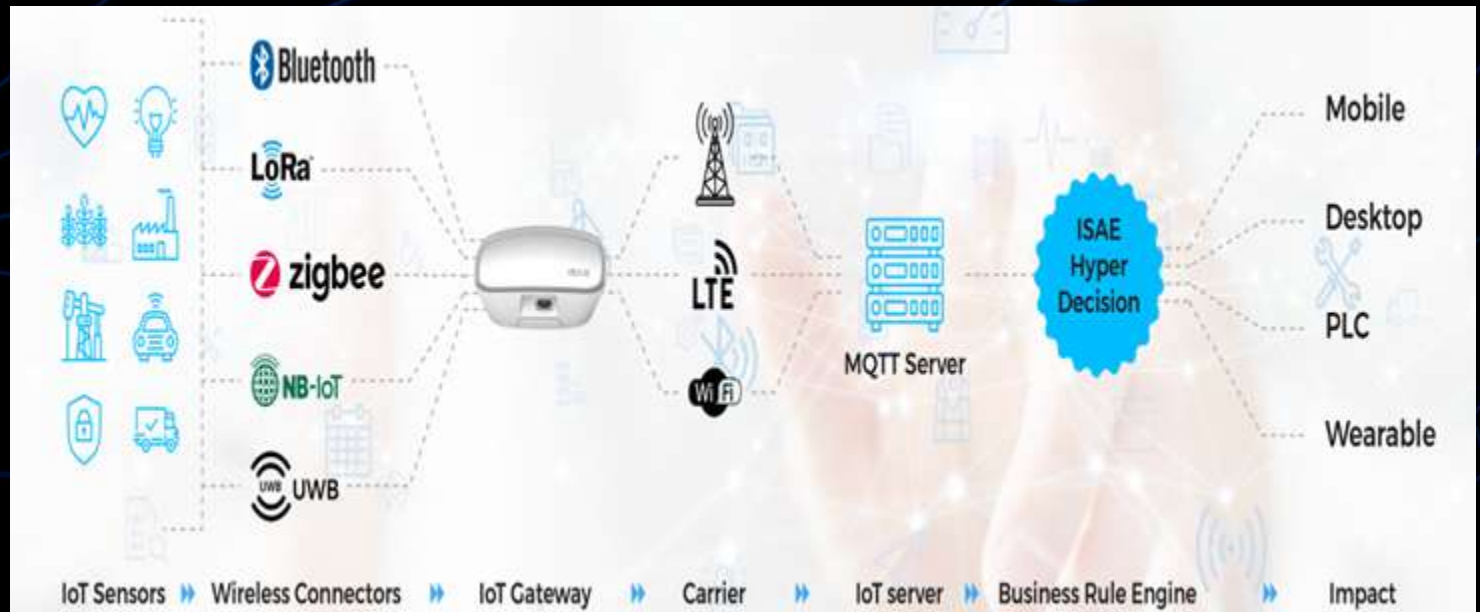
In the past decade, technological advancements have facilitated the manufacturing of compact, inexpensive, and low-power consuming receivers and sensors for smart devices (e.g., GPS, WIFI, MEMS sensors etc.). The Internet of Things (IoT) is an emerging paradigm that enables the communication between electronics devices and sensors through the internet in order to facilitate our lives. IoT use smart devices and internet to provide innovative solutions to various challenges and issues related to various business, governmental and public/private industries across the world. IoT is progressively becoming an important aspect of our life that can be sensed everywhere around us. In whole, IoT is an innovation that puts together extensive variety of smart systems, frameworks and intelligent devices and sensors. Moreover, it takes advantage of quantum and nanotechnology in terms of storage, sensing and processing speed which were not conceivable beforehand.

### How Does IoT Works?



An IoT ecosystem consists of web-enabled smart devices that use embedded systems, such as processors, sensors and communication hardware, to collect, send and act on data they acquire from their environments. IoT devices share the sensor data they collect by connecting to an IoT gateway or other edge device where

data is either send to cloud to be analysed or analysed locally. Sometimes, these devices communicate with other related devices and act on the information they get from one another. The devices do most of the work without human interact with the devices – for instance, to set them up, give them instructions or access the data.



## Sectors That Can Benefit the Most from IoT Development

### 1. Agriculture

Agricultural drones are equipped with sensors and cameras. They are used for imaging, mapping, and surveying the farms. There are two types of drones: ground-based drones and aerial drones. Ground drones are bots that survey the fields on wheels. In comparison, Aerial drones are unmanned aerial vehicles or flying robots. Drones can be remotely controlled. Beside the surveillance capabilities, drones can perform a varying number of tasks that previously required human labour: planting crops, fighting pests, agriculture spraying, and crop monitoring, etc.



#### • Monitoring Climate Condition

Weather stations combined with smart farming sensors collect data from the environment and send it to the cloud for analysis. It is further used to map

the climate conditions, choose the right crops, and improve their capacity.

## 2. Finance

sensors and data analytics to collect a lot more information about customers and thus offer personalized services. It will help the banks understand how their customers buy and spend their money. Implementing IoT in banking can provide The IoT is becoming increasingly secure. Banks and customers have accustomed to managing financial transactions through different connected devices. It is not uncommon to see smart cashpoints with connected cash vending machines. As the amount of data transferred and gathered is huge with IoT, financial businesses can measure risk accurately.

With time, banks will start using more benefits:

- Connected devices can help users cultivate good financial habits and deal with any spending indulgent behaviours.
- It can improve the quality of the banking experience.
- Interactive credit card for customers.
- It has automated business processes for banks.

## 3. Healthcare

IoT technology in healthcare is represented by tracking systems and real-time health systems and is responsible for improving patient treatment, diagnosis, medical and diagnostic equipment maintenance, and remote surgeries. Connected Healthcare is necessary for correct decisions, right actions, smart treatment, and thus

DIGITAL TRENDS SPOTLIGHT

CENTRIC DIGITAL

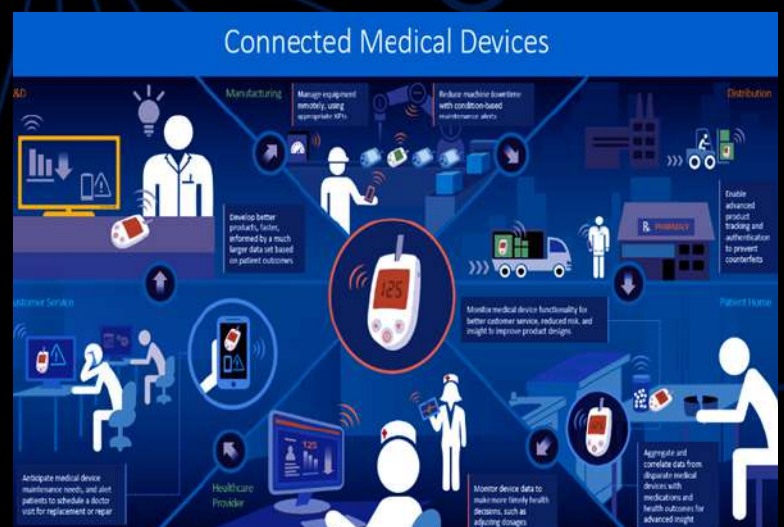
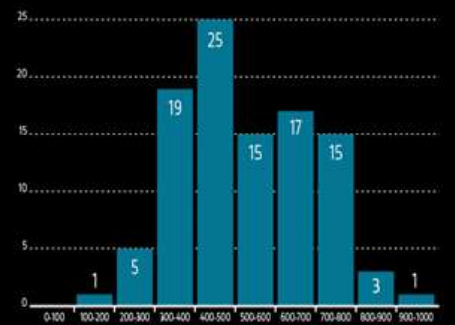
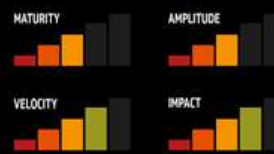
### INTERCONNECTIVITY in FINANCIAL SERVICES

While the Internet of Things (IoT) concept remains a top trend to monitor across the banking, financial services and insurance industries, the way in which IoT will ultimately impact is not yet fully understood. By taking the consumer lens to viewing IoT, enterprises can more readily adopt the correct IoT channel strategies for their businesses.

DIGITAL CHANNEL MATURITY BY READINESS SCORE IN FINANCIAL SERVICES AND BANKING  
(Companies Assessed: 102)

TREND ATTRIBUTE KEY:

Very Low Low Medium High Very High



patient satisfaction. Here's a list of advantages that IoT devices can provide healthcare organizations with:

- Reduced cost for patients
- Remote monitoring of patient's health
- Reduce the length of the patient's stay at the hospital
- Asset management
- IoT devices with sensors are used to track real-time location of medical equipment's

## Future of IoT

Here are some predictions about the future of IoT.

By 2025, it is estimated that there will be more than 21 billion IoT devices. Cybercriminals will continue to use IoT devices to facilitate DDoS attacks. More cities will become "smart".

Artificial intelligence will continue to become a bigger thing.

5G Networks will continue to fuel IoT growth.

IoT-based DDoS attacks will take on more dangerous forms.

- Sachin Kumar Sharma  
1st year

**-Saumik Sarkar**  
2nd year



# *THE ERA OF A FASTER LIFE!*

Throughout the 80s, 90s, 2000s and 2010s the connectivity and mobile networks have changed at a great pace from delivering analog voice in the 1980s by 1G to HD audio connectivity in the 2010s using 4G, we have travelled a long way, but as the saying goes “Change is the only constant” it is time to move forward to another era of even faster mobile connectivity which not only plays a vital role in mobile communication but also plays an important role in changing various aspects of our lives. Let us briefly know a little about 5G first, 5G is the new global wireless communication standard

which not only connects people but also machines in industries and various day to day life use objects, 5G delivers higher multi-Gbps peak data speeds, ultra low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users. Generally when we come to know about 5G as normal humans the one thing comes to mind is faster connectivity, but that’s not the only scenario, in this modern world run by AI and IoT devices Let us get into some of the modern day technology where 5g plays a vital role in keeping connected.

- Giving a reliable medium of communication and wireless IoT connectivity at transport hubs: From real time assets tracking, operation of work robots, remote UHD surveillance, faster shipment data management and seamless interworking with public networks 5G has shown it's importance.
- Playing a vital role in manufacturing: 5G will give a medium for faster Real time supply chain visibility, faster and ultra reliable low latency wireless communication, predictive maintenance and surveillance.
- Automated Vehicles: After installation of AI in different vehicles nowadays there comes a need for a very efficient, reliable and much faster communication mode which is given by 5G, 5G enables your cars non-line-of-sight sensing, smart v2v( vehicle-vehicle) communications, faster vehicle to network ,v2i(vehicle to infrastructure communication) and v2p (vehicle to person communication).
- Getting the online shopping experiences much better: Nowadays shopping in E-commerce websites have been a day to day necessity, from virtual try-ons, faster cloud access, and getting your product delivery much better, after the launch of drone delivery it has been made very essential for faster delivery tracking and gps connectivity which has been made easier with the help of 5G.

As the world will progress the need for a faster communication will rise and 5G will be ready to provide that.



“As the world will progress the need for a faster communication will rise and 5g will be ready to provide that.”

A comparison between 5G and 4G LTE.

There are several reasons that 5G will be better than 4G:

- Higher bandwidth: 5G can handle up to 1 GB of data per second whereas 4G could only handle up to 200 mbps.
- Low latency : Now we can seamlessly and instantly view videos or load images with the help of 5G because of almost 1ms of response time whereas 4G had 100ms, also will provide an over the edge gameplay experience to gamers
- More denser connections: 5G can connect up to 10 times more devices in a particular square kilometre area than 4G.

All these are made possible by 5G because of its radio connections, 5G will use radio frequencies from the range of 24 GHz to 86 GHz which band generally has a higher data so for efficiently transfer of this data 5G will use a technology called BEAMFORMING which will enable the direct aiming of transmissions from its small cell towers rather than just spraying everything in air like 4G.

#### CONCLUSION:

Yes we'll need 5G ready devices in order to use 5G connectivity and all the old 4G devices will slowly fade away but with The constantly changing world which is moving at a really great pace, 5G will play a very vital role in shaping the world's communication infrastructure and act as a reliable and more efficient carrier of our data which can shape our lives.



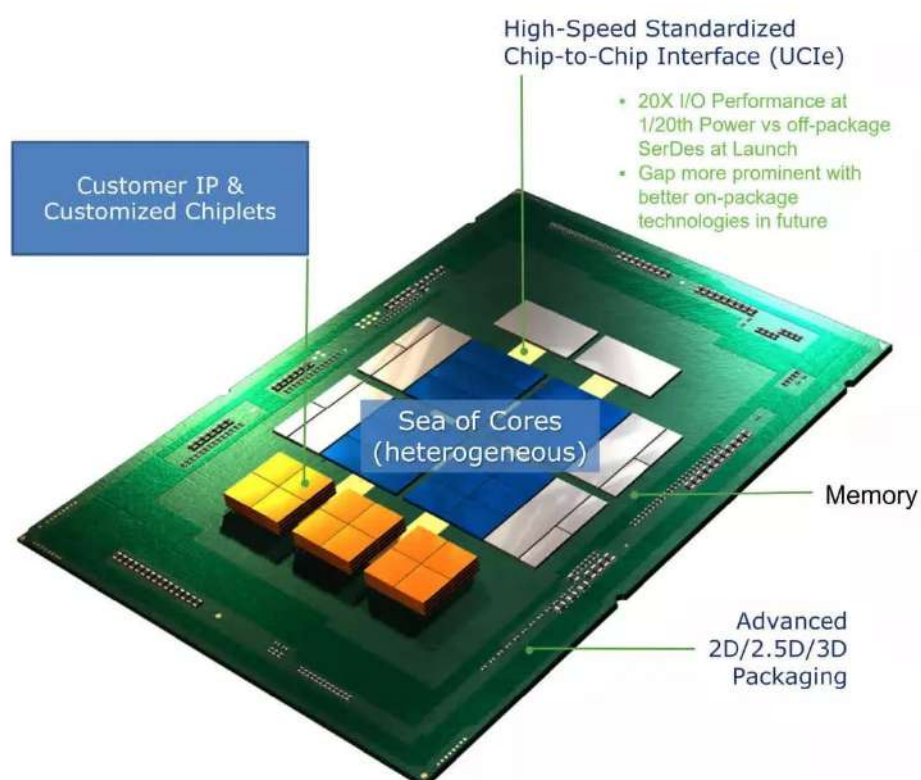
# UCIe : THE FUTURE OF PROCESSING

Soumya Biswas, 3rd Year

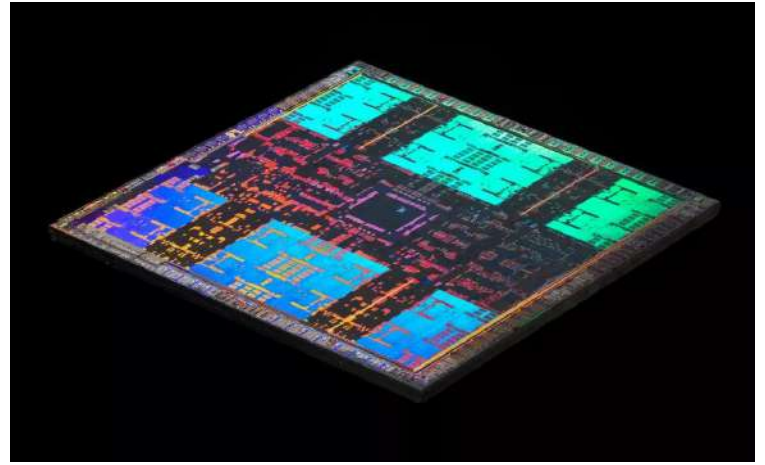
**UCIe** (Universal Chiplet Interconnect Express) is a newly developed standard allowing die to die interconnect and protocol connections for different chiplets in the same processor.

Our traditional processors have been based on single monolithic chips. But as transistors have gotten smaller and smaller reaching sizes as small as 5nm, pushing the limits of Moore's Law, the only way to increase a processor's performance is to increase the processor's chip size. This increases the chances of defects in a chip and causes entire processors to be discarded due to a small defect in the die. This can be avoided by using smaller chiplets interconnected in one processor. A Universal standard for such interconnect has several benefits. It can reduce the amount of dies wasted due to defects, open up options of customization of processors and makes repairing them easier.

## OPEN CHIPLET: PLATFORM ON A PACKAGE

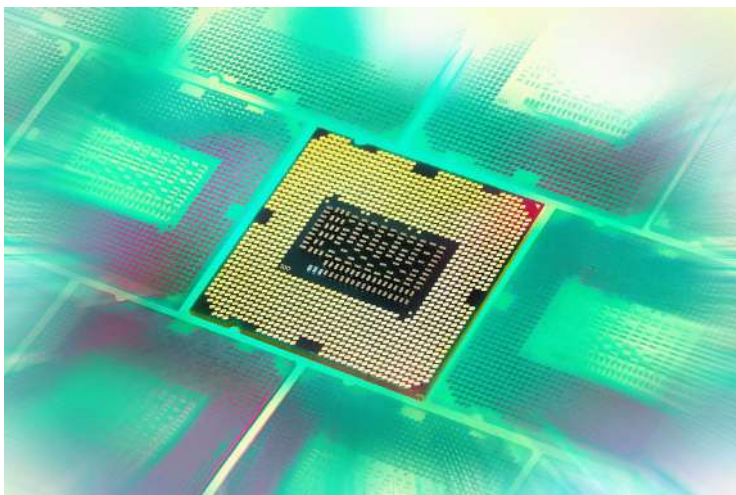


UCIe supports interconnect between chiplets from different companies but also supports interconnection of chiplets of different process nodes. This is great news for consumers as we could see partnership between companies to make customized processors using each of their specialized parts thus giving us



great leaps in performance at lower costs. The chiplets from different companies could be assembled into a single processor according to the needs of the assembler thus creating a line of specific task oriented processors suiting all the needs of the user without being bounded by the capabilities or technology of a single manufacturer. Independence of using different process nodes also helps in designing more affordable processors .Some functions like wireless connectivity works better for larger transistors and thus combining such chiplets with a cpu of smaller process node, we get a more effective processor. UCIe standardization would enable us to have a processor with cpu from Intel, graphics from AMD, Wi-Fi radio from Qualcomm, security enclave of Microsoft and AI accelerator from Google.

Something similar was seen in Intel's 2018 Kaby Lake G processors with custom AMD graphics, UCIe takes this concept further, standardizing it and



making the process of making processors more modular. UCIe uses CXL(compute Express Link) for data transfers among chiplets at speeds of around 1.3 TB/s of data per 1mm edge of the chip. This reduces latency and the power consumption of the chip, helping the manufacturer combine features

that would have otherwise needed to be on separate chips. This technology is however not similar to AMD's infinity Fabric or Apple's UltraFusion bridge used in the M1 Ultra as those processes connect CPU cores directly which is much more complex. With the right use of this standard, we could see a new wave of

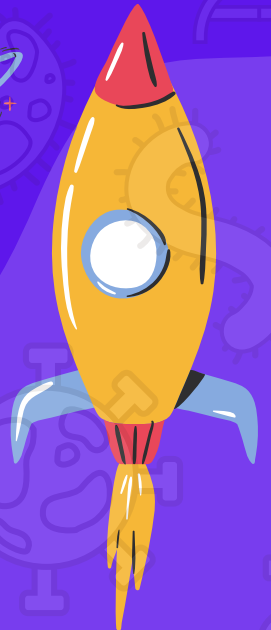
collaborative efforts in the processor market bringing us higher end chips at more affordable prices and lower power consumption.

The potential of UCIe has been recognized and backed by all the major chip manufacturing companies like Intel, AMD, Qualcomm, Microsoft, Google, TSMC, ARM and Samsung. It is still a relatively new standard and it will be interesting to see how it is implemented in the future generations of processing.



# SCIENCE

# HUB



# "Ever thought that the galaxy you are seeing today may not even exist?"



All of the stars and galaxies we are able to see today are almost billions of years old and are close to their end. Some of them may die and form black holes and some of them may end up getting lost in space.

To understand how a galaxy or star gets lost in space let us travel back to where it all started, the Big Bang. Just a few seconds after the Big Bang, the universe was a small non-uniform bubble of energy that had tremendously high temperatures, some parts were denser and some were not. The cooling down of the temperature was explained by the cosmic inflation model put forth by Alan Guth

from The Massachusetts Institute of Technology, who introduced the idea of how the temperature of the universe decreased as the universe started expanding in an exponential manner, so fast such that the universe expanded as trillions of kilometres in a trillionth of a second, just imagine blowing air into a wrinkled balloon.

As the universe started expanding the denser regions started getting bound together by gravity and local groups (collection of a lot of galaxies) were formed. One such local group is our own group consisting of the Milky Way galaxy, The Andromeda and

almost 80 others which consists of many dwarf galaxies. There are a lot of such denser regions called local groups which are not bound together by the force of gravity. All local groups have their own observable galaxies but are moving away from us.

### **So how was this information relevant to the above question?**

The answer lies in the exponentially faster-expanding universe which has created a cosmological horizon between us. Imagine a galaxy moving with exponentially increasing speed and ultimately reaching a speed even faster than the speed of light. Anything that has crossed the horizon is travelling faster relative to us than the speed of light. So, ultimately the light emitted from the object won't be able to reach us, therefore anything that crosses the cosmological horizon of the observable universe is lost forever. Keeping it in a simpler way we can consider this similar to the event horizon of a black hole. Almost 94% of the galaxies we observe are lost forever.

### **But the question still stands how are we actually seeing the galaxy through our telescope?**

The image we see in our telescope is actually the past image of the galaxy, as the light emitted takes billions of light-years to reach us, that does make you question the fastest thing in the universe. Most of the stars we see today are millions and billions of years old and we do not even know if the star is still there or it is dead.

The universe is putting up a great show for us by establishing the ancient images of the galaxies billions of years ago.

At present, we don't even know how many of them have crossed the cosmological horizon and have been lost forever.

Almost 60,000 stars cross the horizon every second and are lost forever.

Saumik Sarkar  
2nd year

# MIND UPLOADING THE NEXT BIG THING!



Quite recently a South African-American is creating ripples on the map of the world- whether be shooting the price of Dogecoins or his appeal to increase population so that colony can be settled on the Red Planet. Out of the countless crazy, fictitious yet revolutionizing Tech solutions, that Elon Musk has offered, one that stands out to me is the Neuralink. A bit hypothetical considering the present rate, but far more feasible and practical than inhabiting MARS. With the advent of Neuralink, a new horizon is expected to open for the CYBORG evolution: A state where humans with enhanced mechanical inputs reside on the

Earth. For those who are unaware of Neuralink, let me give a brief intro some electrodes are introduced into your brain that transmits signals to an external device say PC, smartphone, Laptop etc from the nervous impulses, and vice versa.

**By now you must be wondering- Title MIND UPLOADING, but content NEURALINK! WHY?**

Don't worry we will dig into it.

**"Hello, Peter."**

**"I am Iron Man."**

**"AVENGERS ASSEMBLE !!"**

If you are familiar with these

classics then there's no doubt you belong to the MCU. As

Marvelites I feel most of you are aware of Dr Armin Zola, sidekick of Red Skull and one of the antagonists of Captain America. If you have watched the CIVIL WAR, there Dr Zola's sentient conscious mind was present in a Supercomputer, and that my friend is the very basis of MIND UPLOADING!

**Mind uploading, also known as whole brain emulation (WBE), is the theoretical futuristic process of scanning a physical structure of the brain accurately enough to create an emulation of the mental state (including long-term memory and "self") and transferring or copying it to a computer in a digital form.** The very basis of Mind Uploading is that not only we can preserve the memories of that person after death, but also use his intellect and thought process (artificially replicated into algorithms) to approach a solution from his viewpoint.

Statistically speaking, two concepts have been advocated to realize this dream-

\* Copy - and - Upload

\* Copy - and - Delete

Copy-and-upload focus on scanning the brain, its neural connections, electrical-chemical impulses and signal transmission, followed by uploading it into the artificial simulation. This process aims to restore or minimize damage to the biological brain. The second process Copy- and delete, on the other hand, aims at replicating the same task as the former process, but the only difference lies in the fact it deliberately destroys the biological brains as it continues copying.

Several models have also been developed to exploit these two concepts- Computational complexity, Scanning and mapping, Serial Sectioning, Brain Imaging etc.

**But all of these appear too much fictional. Has any progress been made?!**

Well, it is a yes as well as no; much like the glass is half full or half empty. A project named the Blue Brain Project was initiated by the Brain and Mind Institute of École



École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland, to use biologically-detailed digital reconstructions and simulations of the mammalian brain to identify the fundamental principles of brain structure and function. Speaking in simpler terms, this initiative focused on replicating part of a biological mammalian brain of a rat. Starting in 2005, by 2006, replication of rat brain was completed; consequently, in the following years' attempts have been made on human brains too but due to the dearth of high-performance supercomputers required for this project as well financial embezzlements and sacking of its director, this drive has faced several deadlocks and its promise of delivering a replicated human brain by 2023 has been further postponed. The little success we have tasted so far lays the foundation for the larger picture.

A few decades back, smartphones or air travel were a dream, a hypothetical concept, the fruit of one's imagination, but eventually, they turned into an integral part of reality.

On a similar note, Mind Uploading can be exploited to push the scientific horizon. Memories and thought processes of pioneers can be stored and replicated, human explorations to the edges of our galaxies can become possible, and on top of that, if we can transfer and store data, we can also avoid a present medical malady, namely Brain Death.

**Facts are Stranger than Fiction-** who knows maybe this is the Next Big Thing! Our Minds get uploaded into the Mainframe of a Super Computer and we achieve immortality in our thought process...

Saumodip Das  
1st Year



## THE FUTURE OF TECHNOLOGY *(Metaverse, Blockchain & WEB3)*

The world of technology is changing and evolving at a rapid pace. As soon as Facebook's parent company changed its name to Meta and Mark Zuckerberg announced how Metaverse is going to change the whole scenario of the online socialising game, everyone got hyped and excited about the new technological advancements the world is going to explore and witness in the upcoming future. But, many people are very confused about the whole Web3 and Metaverse

concept, so let's understand the basic concepts of Metaverse.

If we check in Google then the definition of a Metaverse is as follows: - "A Metaverse is a network of 3D virtual worlds focused on social connection." Well till now we had a hypothetical concept of Metaverse and had seen some glimpse of this concept in a few Sci-Fi movies. It is a virtual world that can be facilitated or accessed by the VR/AR headsets. But, before getting

deeper into the concept of Metaverse we first need to understand what is Web3.

Let's first understand what is Web2. We all use WhatsApp, Facebook, Instagram, etc. to connect and socialise with people over the internet. These are different sites where we log in with our credentials or have our accounts or profiles through which people recognise us on those platforms and know about us. Web2 is a platform where all the websites and social media sites are available.

Now coming to Web3, it is a new iteration of the worldwide web based on Blockchain technology. It is a concept of decentralization of the web and incorporates blockchain technologies such as cryptocurrencies, NFTs, etc. I'm pretty sure most of you have heard about cryptocurrencies, yes you guessed it right, I'm talking about Bitcoin, Ethereum, Dogecoin, etc. The Metaverse will be mostly built on Ethereum, yes, a virtual world built over cryptocurrencies or you can say

blockchain technologies.

Now, these technical terms and concepts may sound pretty cool but this is what is going to take over our life in future. People will be spending most of their time plugged into their VR gears and playing with their virtual avatar in a virtual world. YES! This sounds so exciting and cool, isn't it? We can customize our avatar to look whatever way we want to. Most of the public gatherings, social meetings, conferences, etc. will be done over Metaverse in future as claimed by Zuckerberg. Overall, the whole definition of socialising with people is going to take a drastic jump in the upcoming future.



But is it going to be a good step for Human Beings? Well in my opinion there is always a negative side to every new technological advancement. As we can

already see that the GenZ generation is so addicted to social media that they are slowly getting disconnected from real-world social life. They may have 1000 followers on social media but may not have even a single genuine friend who cares about them in real life. An introduction to Metaverse is going to fuel up this problem. But surely if you can manage and do everything in a fair and specified amount then I'm very much positive that the introduction of Metaverse is going to be a great revolution in terms of technology for humankind.

A virtual world, a world designed by your thoughts, freedom to travel to whatever places you want, making friends from different parts of the world, doing whatever you want to, building your very own house and many more kinds of stuff which we can't even imagine in the real world. Metaverse is going to change our entire way of living.

Rohit Kapat  
1st Year

# MATHEMATICS BEHIND THE GREGORIAN CALENDAR

Earlier Julian calendar, introduced by Julian Caesar, was based on a year of 365 days, with a leap year every fourth year. This was not a precise enough measure, because the length of a solar year is 365.2422 days. The small error meant that the Julian calendar receded a day from its astronomical norm every 128 years. By the 16th century, the

of Europe. He decreed those 10 days were to be omitted from the year 1582, by having October 15 of that year immediately follow October 4. At that same time, the Jesuit mathematician Christopher Clavius amended the scheme for leap years: these would be years divisible by 4, except for those making centuries. Century years would be leap years only if they were divisible by 400.



accumulating inaccuracy caused the vernal equinox( the first day of spring) to fall on March 11 instead of its proper day, March 21. Pope Gregory XIII rectified the discrepancy in a new calendar, imposed on the predominantly Catholic countries

We can determine the day of the week for a given date after the year 1600 in the Gregorian calendar. Let us adopt the convenient fiction that each year ends at the end of February. According to this plan, in the Gregorian year, Y March and

April are counted as the first and second months. January and February of the Gregorian year  $Y+1$  are counted as the 11th and 12th months of the year  $Y$ . The days of the week, Sunday through Saturday are designated by the numbers  $0, 1, \dots, 6$ :

Sun	Mon	Tue	Wed	Thu	Fri	Sat
0	1	2	3	4	5	6

February 28 is the 365th day of the year and  $365 \equiv 1 \pmod{7}$ . February 28 always falls on the same weekday as the previous March 1. Thus, if a particular March 1 immediately follows February 28 its weekday number will be one more modulo 7, than the weekday number of the previous March 1. But if it follows a leap year day, February 29, its weekday number will be increased by two.

Let  $D_{1600}$  be the weekday number for March 1, 1600, then March 1 in the years 1601, 1602 and 1603 has numbers congruent modulo 7 to  $D_{1600} + 1$ ,  $D_{1600} + 2$  and  $D_{1600} + 3$  respectively; but the number corresponding to March 1, 1604,

is  $D_{1600} + 5 \pmod{7}$ .

Thus, the weekday number  $D_Y$  for March 1 of any year  $Y > 1600$  will satisfy the congruence  $D_Y \equiv D_{1600} + (Y - 1600) + L \pmod{7}$  where  $L$  is the number of leap year days between March 1, 1600, and March 1 of the year  $Y$ .

Now, the number of years  $n$  in the interval  $1600 < n \leq Y$  that are divisible by 4 is given by  $[(Y - 1600)/4] = [(Y/4) - 400] = [Y/4] - 400$

The number of elapsed century years is  $[(Y - 1600)/100] = [Y/100] - 16$

Whereas among those there are  $[(Y - 1600)/400] = [Y/400] - 4$  century years that are divisible by 400.

Therefore,  $L = ([Y/4] - 400) - ([Y/100] - 16) + ([Y/400] - 4) = [Y/4] - [Y/100] + [Y/400] - 388$

For  $Y = 2022$ ,  $D_{2022} = 2$  [ March 1, 2022 took place on a Tuesday]

$L = [2022/4] - [2022/100] + [2022/400] - 388 = 102$

Thus,  $D_{2022} \equiv D_{1600} + (2022 - 1600) + 102 \pmod{7}$  that implies  $3 \equiv D_{1600} \pmod{7}$

Therefore, March 1, 1600 occurred on a Wednesday.

Now, the congruence may be

be reformulated as  $DY \equiv 3 + (Y - 1600) + L \pmod{7}$ .

We can write the year  $Y$  as  $Y = 100c + y$ ,  $0 \leq y < 100$ , where  $c$  denotes the number of centuries and  $y$  denotes the year number within the century.

Upon substitution, we get  
 $L = [25c + (y/4)] - [c + (y/100)] + [(c/4) + (y/400)] = 24c + [y/4] + [c/4] - 388$

Hence,  $DY \equiv 3 + (100c + y - 1600) + 24c + [y/4] + [c/4] - 388 \pmod{7}$   
 which reduces to  $DY \equiv 3 - 2c + y + [c/4] + [y/4] \pmod{7}$

The table below gives the value that must be added to the day number of March 1 to arrive at the number of the first day of each month in the year  $Y$ .

<b>March : 0</b>	<b>September : 2</b>
<b>April : 3</b>	<b>October: 4</b>
<b>May: 5</b>	<b>November : 0</b>
<b>June: 1</b>	<b>December: 2</b>
<b>July : 3</b>	<b>January: 5</b>
<b>August: 6</b>	<b>February: 1</b>

For  $m = 1, 2, \dots, 12$ , the expression  $[(2.6)^m - 0.2] - 2 \pmod{7}$  produces the same monthly increases as indicated by the table.

Thus, the number of the first day of the  $m$ th month of the year is given by  $DY + [(2.6)^m - 0.2] - 2 \pmod{7}$ .

Finally, the number  $w$  of day  $d$ , month  $m$ , year  $Y = 100c + y$  is determined from congruence  $w \equiv (d-1) + DY + [(2.6)^m - 0.2] - 2 \pmod{7}$ .

$w \equiv d + [(2.6)^m - 0.2] - 2c + y + [c/4] + [y/4] \pmod{7}$ .

Let's take an example: On what day of the week will January 13, 2023, occur? In our convention, January of 2023 is treated as the 11th month of the year 2022 and  $2022 = 100 \times 20 + 22$

Here,  $w \equiv 13 + [(2.6)^{11} - 0.2] - 2 \times 20 + 22 + [20/4] + [22/4] \pmod{7}$

Which reduces to  $w \equiv 5 \pmod{7}$

We can conclude that January 13, 2023 will take place on a Friday.

**Every year contains a Friday the thirteenth:**

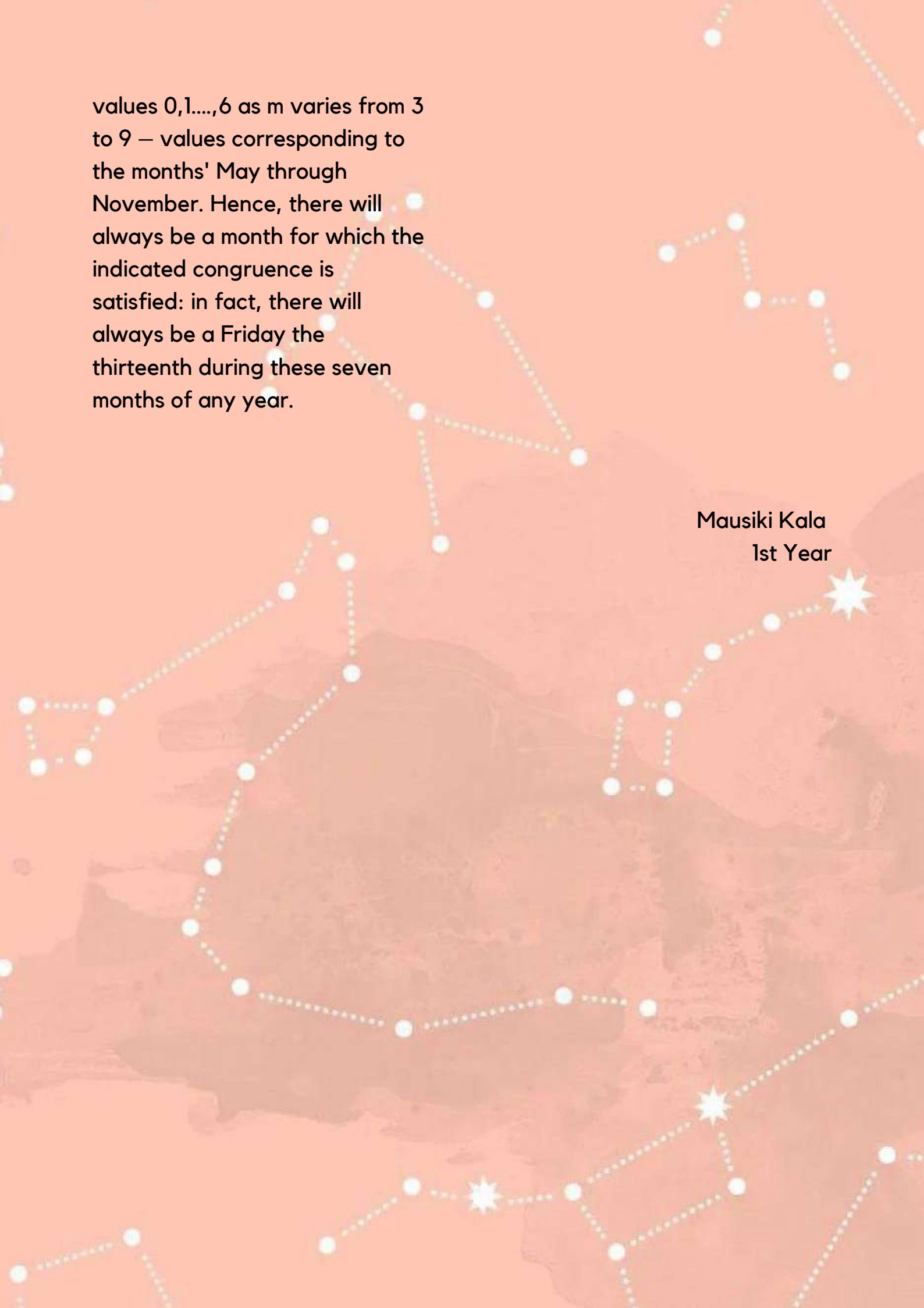
Let's consider the congruence,  $5 \equiv 13 + [(2.6)^m - 0.2] - 2c + y + [c/4] + [y/4] \pmod{7}$

Does the congruence hold for each year  $Y = 100c + y$ ?

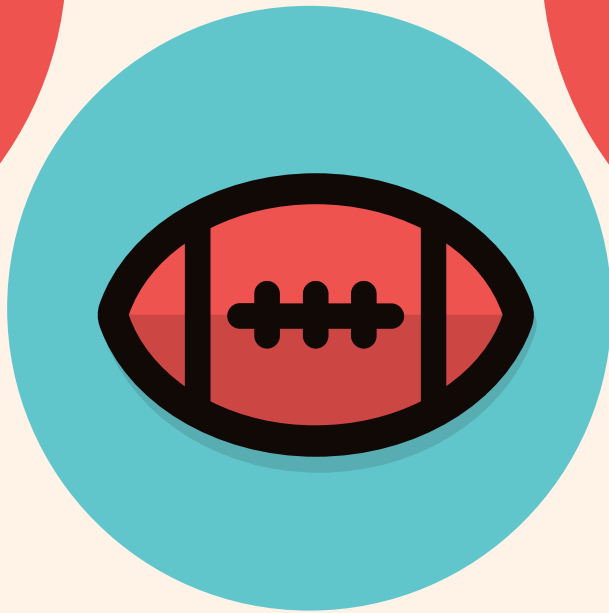
The expression  $[(2.6)^m - 0.2]$  assumes modulo 7, each of the

values  $0, 1, \dots, 6$  as  $m$  varies from 3 to 9 – values corresponding to the months' May through November. Hence, there will always be a month for which the indicated congruence is satisfied: in fact, there will always be a Friday the thirteenth during these seven months of any year.

Mausiki Kala  
1st Year







# SPORTIF



**HARD WORK BEATS  
TALENT WHEN  
TALENT DOESN'T  
WORK HARD.**

# DIPA KARMAKAR

---

➔ Got rejected as fit athlete



➔ Eventually bagged bronze



## THE INDIAN PRODUNOVA

by **SOHINI MAZUMDER**  
3rd year

Dipa Karmakar is a 28-year old artistic gymnast from Agartala, Tripura.

As a child, she was introduced to gymnastics through her father who was an avid admirer of the sport. Dipa herself never had much of an interest in gymnastics, and was terrified of falling and hurting herself when she first started learning the sport.

It was at the age of five when Dipa first learnt that she might not be able to become an excellent gymnast when the Sports Authority of India refused to train her since she had flat feet – an undesirable trait for a gymnast. When she went to a gymnasium in Bandarghat in Agartala, a medical test was conducted on her flat foot, that ruled her out of gymnastics.

Coach Bisheshwar Nandi however, thought otherwise. Through an intuition honed by experience, he saw the latent potential and talent present in seven-year old Dipa, and decided to take her on as a student. The training conditions were tough due to a lack of funding and infrastructure, but under the guidance of her coaches, Dipa built a strong base and learnt to overcome her flatfoot – the condition that had always weighed her down as a handicap.

Add a little bit of body textHer hard work started reaping success in 2002, when she won the North-East games at the age of nine. 2007 onwards, she started winning many more tournaments and slowly made a name for herself as a rising athlete in the world of gymnastics.

2014 was the year when she first came to the attention of the general public. While having consistently won a large number of prizes over the last few years, her fame was constricted solely to the world of gymnastics.

The biggest surprise to the whole world was when the representative of India, a country with a relatively nil track record in international gymnastics, bagged the bronze medal with her heart-stopping Produnova vault in the 2014 Glasgow Commonwealth Games.



Having a 7.0 D-score, among the highest level of difficulty in gymnastics, the Produnova vault is infamously nicknamed the vault of death due to its incredible risky manoeuvre that consists of two consecutive somersaults. One tiny miscalculation in the jump height could instantly lead to a fatal injury.

Despite having been introduced to this vault just three months before her performance at the 2014 Commonwealth games, Dipa decided to go forth with her ambition and desire to successfully overcome everyone's expectations and pull off the Produnova vault without fail. Surprisingly enough, three months were enough for her to master the vault and perfectly execute it on a stage as big as the Commonwealth Games in 2014. As if attempting the most difficult vault in the world was not enough, Dipa actually went on to attempt the Produnova on an ankle with a hairline fracture!

While this led her to winning the bronze, Dipa's ambitions did not stop there. She wanted to make sure that she had more victories under her belt and had her sight set on the Rio Olympics, 2016.

Dipa was the first Indian gymnast at the Olympic Games in 52 years, and the first woman gymnast in the history of India to make an appearance in the Olympics. All eyes were on Dipa when she went out to perform the Produnova vault once more, an entire nation watching with bated breath.

Being only the fifth woman to successfully land the Produnova, Dipa narrowly missed her targeted landing spot on the podium, and missed out on the bronze medal by just 0.150 points.

However, now the world knew about the existence of one Dipa Karmakar, and was not going to forget about her any time soon.

Once back home, despite having missed out on an Olympic medal, Dipa was given a victor's welcome. Many children just starting out with the sport stated her as their inspiration, while her colleagues had only praises to shower on her.

Her achievement in the sporting history of India was officially recognised when she was awarded the Rajiv Gandhi Khel Ratna Award for her display in the international tournaments, and the Padma Shri in 2017, by the then President Pranab Mukherjee.

Since her first stint in 2007, Dipa has gone on to win 77 medals in total, 67 of which are golds, in various levels of competition and has still not given up practicing consistently, the same way she has been doing since day one.



7th September 2021; India was on a high winning the 4th test match against England in England. India was leading the test series 2-1 against England with 1 more test left. Virat Kohli, was then, the captain of all 3 formats and IPL. The last test was subsequently canceled due to a Covid outbreak in the Indian camp. Virat along with his teammates flew to Dubai to play IPL from the 19th of September. So far, it was all going fine.

On the 16th of September, Virat Kohli shocked countless Indian cricket fans by announcing that he will no longer be the T20 captain post the World Cup. He revealed that he has been captaining for the last 7-8 years and he now feels that the workload is becoming difficult for him to manage. He added that he wants to focus more on his batting. Experts had predicted that he might quit captaincy post the World Cup. India has not won a world event since 2013 despite having good squads almost every time. And many felt, that Rohit Sharma who has 5 IPL trophies as captain, can be tried out. Despite all the speculations, the decision surprised many, as just after a few days, there was a World Cup to follow. What followed; was a string of controversies including Sourav Ganguly, the BCCI president, and Virat Kohli with contrasting statements coming from them almost every day thereafter.



On the 19th of September, around 10 pm news came from the RCB camp that Virat will give up his IPL captaincy after the season. RCB bowed out in the semifinals and thus, Virat ended his captaincy stint with RCB with, unfortunately, no IPL trophies.

Then came the World Cup, which the whole of India waited for. India lost the first two matches against Pakistan and New Zealand comprehensively and thereafter even after winning the back 3; India couldn't qualify for the semis. It was a major shock as India was assumed to be one of the strong contenders for the trophy. Throughout the tournament, the team lacked in spirit, energy, and gameplan and looked clueless. Virat looked submissive and was unable to induce the positive energy in the field that he usually created in the field over the years. Coach Ravi Shastri's tenure also ended. Rahul Dravid was appointed as the new head coach. Rohit Sharma; appointed as the new T20I captain started on a winning note, with India (under his captaincy) whitewashing New Zealand in T20I at home.

On 8th December 2021, BCCI announced that Rohit Sharma will be the ODI captain for the South Africa tour. Virat was stripped of his ODI captaincy (even after he stated earlier that he will continue captaining the ODI team even after leaving his T20I captaincy). Later, Virat revealed on pre-departure PC for South Africa, that he was informed about the decision just 1.5 hours prior to the official press release. Chetan Sharma, the chief selector informed Virat of the same over a phone call. The meeting was to discuss the test squad for South Africa and just before ending the call, Chetan Sharma informed Virat that he will no longer be the captain of the ODI team also. A day after, Sourav (BCCI president) came for PC and told that there can't be different captains for T20 and ODI's, and since Virat had decided to leave the T20I captaincy (even after he was told to reconsider his decision repeatedly), so the selectors decided to look past him in ODI also. Rohit was named as the new ODI captain, since

he was already leading the T20I team and BCCI is looking at him as captain for the 2023 ODI world cup to be held in India. Virat on being questioned about the same, replied that nobody from the BCCI had objected to his decision to resign from T20I captaincy, rather his decision was greatly appreciated by them.



The blame game continued for several days to follow. Many conspiracy theories started to circulate on social medium platforms regarding how Virat is being targeted by Sourav & Co. Chetan Sharma (chief selector) finally settled this debate on 31st December by attending PC (just after releasing the ODI squad for the South Africa tour) stating that every member of selection committee had requested Virat not to step down.

Meanwhile, Rohit Sharma picked up an injury that saw him ruled out for both the Test and ODI series in South Africa. It was a major setback and it meant that there wasn't a captain for the ODI series. India lost their golden chance of winning the test series in South Africa, losing 2-1 to an inexperienced and comparatively weaker South African team.

A day after the test series was over, Virat informed him of resigning from test captaincy also. Virat had a great record as a Test skipper. India under him defeated Australia in Australia two times (both in 2018,2020) and was on the cusp of a series win against England in their den. He built a core of young lethal pace bowlers; capable of picking all 20 wickets overseas. India in the test; is now seen to win not 1 or 2 matches but win series overseas. He was seen to continue as the Test skipper for some more years at least. So, such a decision coming from him was totally beyond imagination. KL Rahul eventually became the ODI captain for the SA tour. India lost the ODI series 3-0 thereby, ending a disastrous tour of South Africa. A few days back, Rohit (after recovering from his injury) was appointed as the new Test captain, thereby becoming full-time captain (across all formats). Thus, Virat Kohli who in September 2021, was the captain of all 3 formats; now in February 2022, within a span of only 5 months, is no longer the captain of any format.

# FIRST EVER "WINTER FIFA WORLD CUP"

For the very first time, the football extravaganza will be hosted in the Arab world, in winter. FIFA World Cup 2022 Qatar slogan - "Expect Amazing". The tournament logo symbolizes the tournament trophy, the number "8" symbolizes "inter-connected" and eight host stadiums. It also portrays the image of shawls to signify the tournament's winter scheduling. The tournament is scheduled to kick off on 21 November 2022 and continue up to 18 December 2022. With every preparation done to host the world's popular game, it is now up to the teams, the players, and the fans to deliver magical moments throughout the tournament. In 1930, the first edition of the FIFA World Cup unfolded before billions of fans around the globe. Since then, neither the craze for the game nor the anticipation for the tournament hit rock bottom. The 22nd edition of the tournament will be a different ball game altogether. This world cup will be played in winters rather than in traditional summers that too of 28 days just. But, reaching this grand stage, is not a cakewalk. With 200+ intl. teams began their journey 3 years before the commencement of the tournament, only a handful of 32 teams qualify for the grand stage. The 32-team group stage will go down to 16 teams then only the top two teams from each group will advance to the round of 16. Those 16 survivors will then begin a single-game knockout competition, extra time and penalties will be used, if necessary. The qualified teams represent 5 or 6 confederations, namely, CAF (Africa), AFC (Asia), UEFA (Europe), CONCACAF (North and Central America and the Caribbean), and OFC (Oceania), CONMEBOL (South America).



**FIFA WORLD CUP**  
**Qatar 2022**



**La'eeb**

Give Love - 2



FIFA World Cup Qatar 2022 not only set the hosting bars high but chalked the tournament valuation even higher and miles ahead than any other editions of the world cup. The 22nd edition is being valuated around a whopping of \$220 billion editions, and the second-highest valuated edition was the 20th edition, Brazil, which was around \$15 billion. The World Cup is scheduled to be hosted in around 8 venues, in 5 cities. Stadiums that will host the matches are also something to look forward to. One of them is Stadium 974. It is the most environment-friendly stadium. The stadium includes a partially-recycled steel structure. The number 974 refers to the number of shipping containers used in construction. Another one is an engineering art piece, Al Wakrah stadium. It resembles the sight of a sailboat with very slick designs. These projects were not easy to accomplish and left many engineers and designers scratching their heads. Some of the stadiums have even been built in the last few years. The State of Qatar has left no stone unturned in its preparation for the FIFA 2022 World Cup and quest for sustainable development. The Middle East country left no stone unturned to make this year's World Cup, the best in the history of the tournament.



This World Cup is also a special affair for many greats of the game as it will be the last World Cup dance for them. Lionel Messi, Cristiano Ronaldo, Robert Lewandowski, Neymar, Manuel Neuer, Karim Benzema, Sergio Busquets, Edinson Cavani, and Luis Suarez, all have the last opportunity to grab the marvelous 18-carat gold FIFA world cup trophy and place their final piece of the puzzle in their illustrious career. Well, many greats of the game will say goodbye to the tournament but at the same time, many young talents will also showcase their set of skills and produce magical moments in the tournament. It will be a life-changing tournament for them. Youngsters like Kai Havertz, Pablo Gavi, Juan Miranda, Malcolm, Mason Mount,



Christian Pulisic, Xavi Simons, Erling Haaland, Jude Bellingham, Phil Foden, Vinicius Jr and Pedri, all have golden opportunities to boost their careers exponentially. This World Cup will be the last dance for some, while the first magical affair for others, but one thing in common, i.e., special for all.



**Official Match Ball**

With only a few months to spare, the craze for the World Cup building up with the unveiling of the mascot, theme song, and match ball for the 22nd edition. La'eeb, "super-skilled player", the official mascot for this World Cup, resembles the famous cartoon character from yesteryear. "Al-Rihla" – an Arabic word for a journey or a travelogue that documents it, will be the official match ball from Adidas is all set to roll at the grand stage.

Well, any tournament without theme songs sounds boring, right? "Hayya Hayya" (Better Together) was released by FIFA as the first track for the Qatar 2022 World Cup. "By bringing together voices from the Americas, Africa, and the Middle East, this song symbolizes how music - and football - can unite the world," said FIFA Chief Commercial Officer Kay Madati." With the conclusion of the draw ceremony, the 32 teams have been divided into 8 groups. The hosts, Qatar will take on South American side Ecuador, making it the inaugural match of the tournament Monday, November 21, 2022, at the Al Bayt stadium in Al Khor. The final will be played at the Lusail Stadium in Doha a week before Christmas on Sunday, December 18, 2022.

The stage is set, the opportunity has arrived, the players and fans are ready, the excitement levels are at an all-time high, and only the kick-off awaits. It will be a Christmas before Christmas for all of us. People from different generations, professions, ideas, and believes, irrespective of any social differences will unite to cheer up their nations. So, are you ready for the first-ever winter FIFA World Cup? Who will be your "The Doosri country" to which you are looking forward?

Be ready to expect amazing.

**Arup Sarkar**  
**2nd Year**

# FUTURE OF CRICKET

## FROM THE PERSPECTIVE OF A CASUAL FAN



I am not much of a sports fan. I do watch certain football and tennis matches from time to time, but cricket has been the only game I have followed consistently.

A variety of forms of the Gentleman's Game are played - Tests, ODIs, T20s, T10s, The Hundred, etc; each attracting a different segment of fans.

It is the IPL season. If you don't live under a rock, chances are you have heard about the highly successful, franchise-based men's T20 league. But, like all popular things, this league has its detractors as well as its admirers. There have always been a few elitists who believed that the IPL was not true cricket. "Ultimate Fans Prefer Test." They are not intrigued by commercialization, thrilling bidding rounds, suspenseful climaxes, and countless sixes. Many controversy theorists also suggest that the league is scripted.



Basically, the IPL fanboys and test match purists have been at war for a long time.

Few suggest that Test fans are intimidated by the idea of a yearlong IPL and disappearing international friendlies. They worry that cricket will suffer the same fate as other major sports such as football, which have failed to survive on the international model and have succumbed to a club-based format. And there is some validity to their fears:

- Club-based cricket generates higher revenue.
- World-class stadiums are being set up across India, including tier-3 cities like Raipur or Dharamsala, so the infrastructure is no longer a problem.
- Indian or international, there is no shortage of world class players.
- As with everything commercial, club cricket has a huge following in India. Viewership will therefore not be an issue.

However, I personally believe that international cricket will endure.

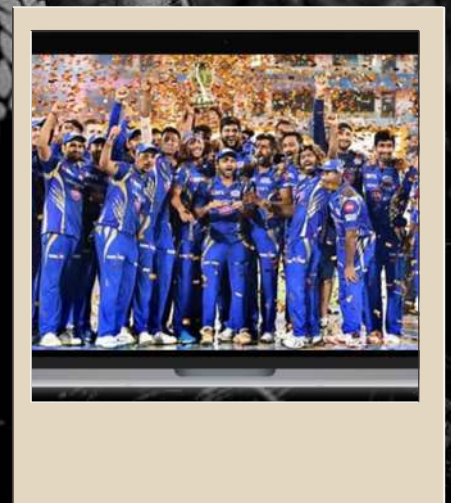
As it is with art films and commercial films, the IPL and test cricket complement one another. Players must hone their skills in both formats. After all, an athlete's greatest asset is his versatility.

Sachin Tendulkar himself has claimed that the IPL has played a large part in the rise of today's Indian bowlers. Pacers in the league are well taken care of in terms of fitness and general health by their franchises.

Thus, rather than yucking someone's yum, why not enjoy the various formats for their own pros?

Club cricket and international cricket can coexist.

What do you think?





# INKED THOUGHTS

“I’ll borrow of imagination what reality  
will not give me”

# Welcome spring

Colour pink:- Pink are the blossoms dancing in the spring wind pink like her handpicked clothes and blushing checks she'll never forget the warmth of the floating sun her heart like the pink blossoms slowly falls with each whisper.

Colour green:- Green like a fresh romance as the leaves comes to life the rain arrives stronger he is afraid that she'll melt with the passionate tears so he becomes her shelter for as he can be he looks out for her just until the rain stops.

Colour orange:- Orange like the setting sun fading away and crisping up like the leaves on the branches soon there will be nothing like him but she waits anyways for the last piece to die.

Colour white:- White were the flakes descending within the cold wind there is nothing now no warmth no pink, green or orange.

*Shadan Malik*

*2nd Year*



# Alone among us

There lies a loneliness, cast upon this world  
so absolute, one can see it in the steady movement  
of the hands of a clock

People so flustered ,maimed either by love or  
longing for love

They despise each other one on one

The rich envy the poor while the poor envy the rich  
We are afraid of ourselves and the people around us  
The dreams in which we die are the best we ever have

Education tells us that we can all be winners  
But it doesn't tell us about the gutters, the anguish  
of one's aching soul ,untouched unspoken to  
smiling at us hoping for us to smile back.

*DEBSARATHI SEN*

*1st Year*



# Eternal

Thousands die every day,  
While walking this land of grey,  
Like living carcasses,  
Of memories countless.

Since the birth of time,  
People have searched for the Divine,  
But failed to look inside,  
The minds of beings beside.

Those who dared to look around,  
Divine they found,  
In the eyes of beloved,  
That moved hearts benumbed.

But look how falsely they were accused,  
Shunned by all, shoved and abused;  
For they chose to be humane,  
And denied to worship stones in vain.

The same chronicle repeats,  
Every day on every street;  
Still they choose to look for,  
Love, in fields of war.

The days soon change,  
And world is rearranged.  
The hold remains same,  
Only the hands are renamed.

*Eepshita Pahari*  
*1st Year*



# Roadside Beauties

I love the flowers on the  
roadside.

These small pretty  
inconspicuous flowers.

They blend into the  
background,  
Adding pops of colour to the  
scenes.

They grow without help or  
care,

It is amazing that they are so  
relentless -

In their beauty and structure,  
Despite their tiny fragile being.

They are the wild children of  
nature,

Unpredictability in their very  
being.

Overlooked by everyone they  
live out their lives.

Without the burden of  
expectations so high.

They care less who they please,  
Content enough to sway in the  
breeze.

They are the haven for bees  
and birds.

Who cares whatever these  
humans may feel?



A nuisance, a bother,  
thought provoking or  
complete disorder,  
They are the hidden  
gems in the world of  
curated nature.  
Flowers in bouquets  
and posies and  
nosegays,  
What meaning are they  
without these roadside  
beauties as their aid.

However cheap,  
however common,  
They can spruce up the  
room with a handful of  
blossoms.  
They need no work on  
them at all,  
'Cause they are the  
perfect of them all.

So, no matter how  
plenty they are,  
They can never be  
enough,  
Never be enough,  
Never be enough for a  
world so increasingly  
dull and dark.

*Meghna Bose*  
*1st Year*







# The UNPREDICTED DESTRUCTION

The day whispers and night blooms,  
Looks like a perfect romantic climate  
Suddenly, the people around me slowly  
fades ,  
With utter cracks and like broken pieces  
of fragments  
Burst into seed similar to an old ripen  
trees  
Started to descend down and turned into  
stones,  
Just like it remains unaffected with  
changes and adaptations  
Just like the effect when strong,  
malignant thunder realms on an open  
ground,  
And still everything stands calm and  
silent  
Soothes down and paved a way for  
destruction.  
Trust, love, pain , sorrow and promise  
Are just now a glided snow and  
unfinished lie  
And transforms the good into unknown  
hatred of beasts  
Meetings, Attachments and Departings  
are just now words of undreded reality,  
Rivers of lives becomes rivers of deaths  
and blood  
Sufferings, Destructions and grief  
becomes the flow of life,  
Slowly the counting turned shorter and  
shorter  
And ends when all will reduced down to  
ashes.

*Souvik Chaudhury*  
*2nd Year*



# Tomorrow didn't come

If you waited, don't cry ;  
Because I was a soldier born to die

I lingered about the borders, at times  
unarmed,  
For Shading upon our Motherland's soul—  
To shield the laps that once gave us solace,  
To shelter the arms that once gave us  
warmness ,  
To calm the hearts that are yet soundness;  
I deploy adverse to the foe of my mother,  
but may not come home to cherish her eyes  
further;  
So if you waited , don't cry;  
Because I was a soldier born to die.

We come from different places as bricks of  
wall,  
To protect a few ten thousand families from  
nemesis that surge upon all.  
On a warm valentine evening :  
I was talking to my dear daughter , just  
turned three this day - " I will be back home  
tomorrow " said , I when sudden a rain of  
bullets started firing;  
And a bullet pierced through the heart of  
mine;  
then I crashed down to the earth retiring,  
From all the responsibilities of mine, here I  
got expired,  
On the other side keeping my daughter and  
wife despaired.  
So even if you sit awaited, don't cry;  
Because I was a soldier born to die.



There I lay on the ground, all tramped and  
thundered,  
And a fountain of blood flooded, the dusty  
land and a few bodies shattering here.

So on this sweet day of love, when people  
around are hanging loving,  
I hereby resign from my life;  
Too loving maybe my Motherland.  
So don't sit awaited, this tomorrow didn't  
come and dont cry because I was a soldier  
who was born to die..  
Die for all, My pal or maybe also for my baby  
girl...

*Prithvisha Gupta*  
*1st Year*

# Shattered Dreams

Fancy cars speeding in every direction  
How the rich kids make an impression!  
Extravagance and enjoyment are their rights  
There's no resentment and no fights.

But look at those children so different I pray  
Those whose childhood has been snatched  
away

See their tender hands loading coals on the  
truck

Hands that are thin and covered in muck

Their black grimy face where their hopes are  
dying

Their sunken eyes show they're tired of crying  
Their cuts and bruises are far from healing  
Their senses are numb; they have no feeling.

Those hands that are meant for study and play  
Should they be working and labouring all day?  
Loved and protected, filled with laughter wild  
Should this not be the profile of a child?

They gaze longingly at the children's park  
And pray that God should end their dark  
And pull them out from those mires of grief  
For those circumstances are their childhood's  
thieves!

As I get up to walk back alone  
My pain is deep, it makes me groan  
Tears fill my eyes, my conscience screams  
To see those rough hands and shattered  
dreams.

*Manisha Bose*

*1st Year*



# THE FEELINGS UNEXPRESSED

I dream of an equal place to live in,  
An equal place of security, an equal  
place to breathe in.

In the midst of the foldings of my  
eyebrows, the daily struggles,  
Overcoming all the obstacles,  
I dream of a beautiful place to live in.

A place where no one will seek  
permission,  
No one will ever dare to grant  
permission.

No existence of discrimination,  
No bounds on human introspection.

Everyone will be free  
To breathe, to laugh, to run, to glee.  
No bounds, simply no bounds can ruin  
The elated hearts within.

The ideas innate, the wishes latent,  
Must find a platform to be expressed  
on this planet.

The desires hidden since ages  
Should not anymore remain inside the  
cages.

It's high time now  
To extinguish the fire of sorrow,  
To lit the candle of true humanity,  
To convert the existence of souls into  
immortality.

Let's all pave our  
Way to a new eternal world, where  
expressing one's feelings would not be  
a pain anymore.



Giving hope to the weak, to the inferior  
Is not an errand to ponder,  
Instead, it is a deed to be acknowledged,  
A pious feeling to be appreciated.  
Let's all break the chain of patriarchy in  
addition to matriarchy  
And remove the scales from the society  
which are somehow barky.  
Transforming this place into heaven,  
Where no one will be considered as a  
burden.  
'Equality' will be a master word in all of our  
cells,  
So, let's take a pledge before reaching our  
senescence –  
'Equality' is not a need to be seeked from  
anyone  
It is an inherent right to be bestowed to  
everyone  
Without any discrimination,  
Without following a familiar fashion.  
With this, I cease my pen,  
With the hope that these untold folds  
within might bloom again.

*Ankita Chakraborty*  
*1st Year*



# Never Die

Through the bay windows, the silence of the deeps pours in. The mosaic of varicolored square granites, the poignant music of the dithery weeds, the tangle of beaded curtains somewhere and the wind conversing with the inanimate objects in my room made me speechless; somewhat impaled and dazed. . Before I even knew what I am up to, I found myself fleeting down the stairs. After this, I remember nothing for I was suspended in a space juxtaposed between reality and imagination.

The darkness kissed the phantom orb in the sky and the curators of eeriness whizzed past. An intangible and invisible, yet promising torpedo seared the sky; splitting the world in two halves. The half where I was in before all of this happened and the half where I was being pushed into. The pale glow of the silver orb peeled my soul from the facade. Am I alive? The question seemed to echo through the world I didn't recognize which eerily seemed home then. I felt as if I am made of cotton. Suddenly, a white apparition in the face of twilight silhouetted me. My mind echoed my voice as a torrent of panic thundered down from the tip of my hair to the pointed ends of my toe-nails. I realized that I had lost my voice. Before I could lament for a part of my existence being ripped off me, I heard a voice which made both the worlds freeze. As she spoke I felt as if the rivulets are basking in the glow of the Sun and both worlds are dancing to the music of emancipation.



The feathery yet hypnotic voice said-

“Curators of divine  
Succor her to the end  
For she doth not belong to this shrine  
The tempest inside her raved  
Quell the tempest fine  
I doth my earthly exile to her lend.”

The pale world in front of my eyes transformed into a blurry water-color painting. A chiaroscuro of life and death- a fine line between reality and imagination-that’s all I can say about that short span of time when I returned to my world alive. The storm has been subjugated and the atmosphere is hushed.

But the weird part is I can see myself on those fleet of stairs, blood dripping off my hair. The swoosh of the bead curtains can I hear as the wind blows past. It is as if I don’t want to live. I am telling my physical self on those stairs to wake up and feel the stormy passions in my heart. However the body on the stairs reiterates-“ I don’t want to live.” So I am there but still not there. I am wandering to find my place in whatever world. The Divine and the Satan are no longer antonyms for I am clipped between life and death.

Within a span of seconds, a sudden realization hit me. What have I done in all these years? What good have I done for others? What is the meaning of my existence in this world? What difference will the me on the stairs and the me in this parallel world make? And the answers to all those questions backfired on me within seconds..

I still wanted to live, to do something for the orphans like me, to raise awareness on child sexual harassment. Why should I even think about ending my life if I am sexually harassed by another predator?

The moment these thoughts struck me, I could see a blinding white light and I could sense some movement. The lifeless me and the partially alive me were conjoined together. I was a complete me then.

I woke up in a hospital on a fine sunny morning. The doctors told me that I was in a coma for one month. I had attempted suicide. Miraculously I pulled through. Whether the incident was a reality or fantasy, I don’t want to know. Some things are just meant to be. All that I know is that my life is a gift. I intend to do all the things that I thought I would do seeing the lifeless me there on the stairs. I don’t want to live in my past. This is my second life- my rebirth and I intend to make good use of it.





ले लि  
ख श  
न न



# আমি যদি

আমি যদি উল্কা হতাম,  
অন্যায় অমিচার জ্বালিয়ে দিতাম;  
মিথ্যা বিচারের মুখোশ খুলে,  
সত্যের আলো প্রকাশ করতাম।  
নির্যাতিতদের হাতের অগ্নি হতাম  
পাপীদের পুড়িয়ে দিতাম  
আমি যদি উল্কা হতাম।।

আমি যদি ঈশ্বর হতাম,  
দুঃখী মায়ের চোখের অশ্রু  
মুছিয়ে দিতাম।  
ওই যে অনাহার ক্লিষ্ট দরিদ্র শিশুটি  
তার মুখে অন্ন দিতাম।

আর্ত, অসুস্থ, শীর্ণ, রুগ্ন, অসহায় মানুষের  
দুঃখের ভার লাঘব করতাম।।

স্বপ্ন ভেঙ্গে জেগে উঠি, ভাবি মনে মনে;  
বড় কিছু নাইবা হলাম।।

ছোট্ট জীবনের পরিসরে, যদি কিছু করতে পারি,  
তারই অনেক দাম।

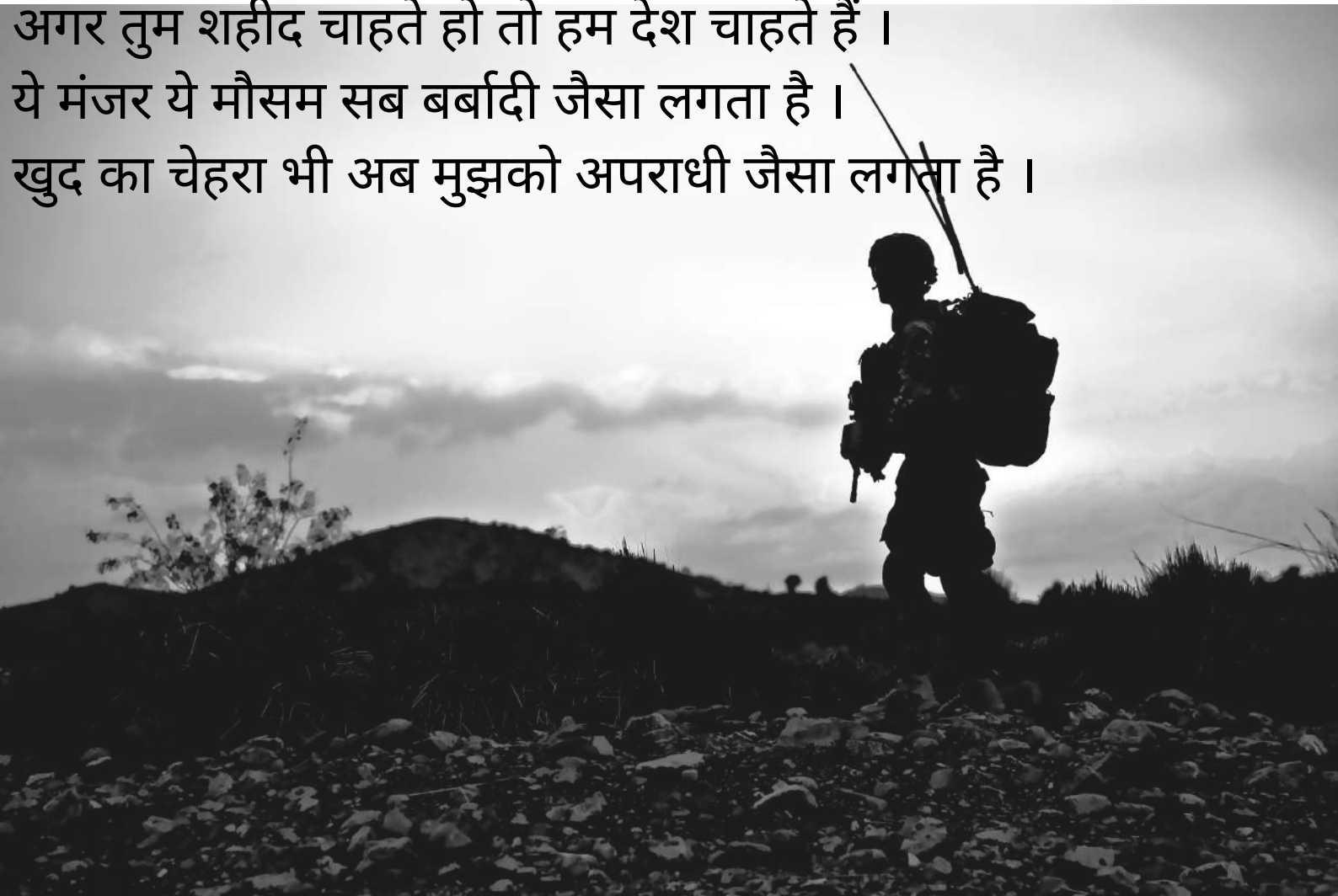
# जंग

जंग का मौसम ही तो चाहते थे  
मौसम ऐसा जो बस बर्बादी दे  
मेहसूस हो मगर दिखाई न दे  
शहीदों की लाशे, खून और बर्बादी चाहते थे  
तुम जंग ही क्यों चाहते थे !

NO   
WAR

शहीद वो जो देश के लिए कुर्बान हो जाते है  
शहीद वो जो रिश्तों की दीवारें लाँघकर सरहद को थामने चले जाते हैं  
तो फिर वो लौट क्यों नहीं पाते हैं ?

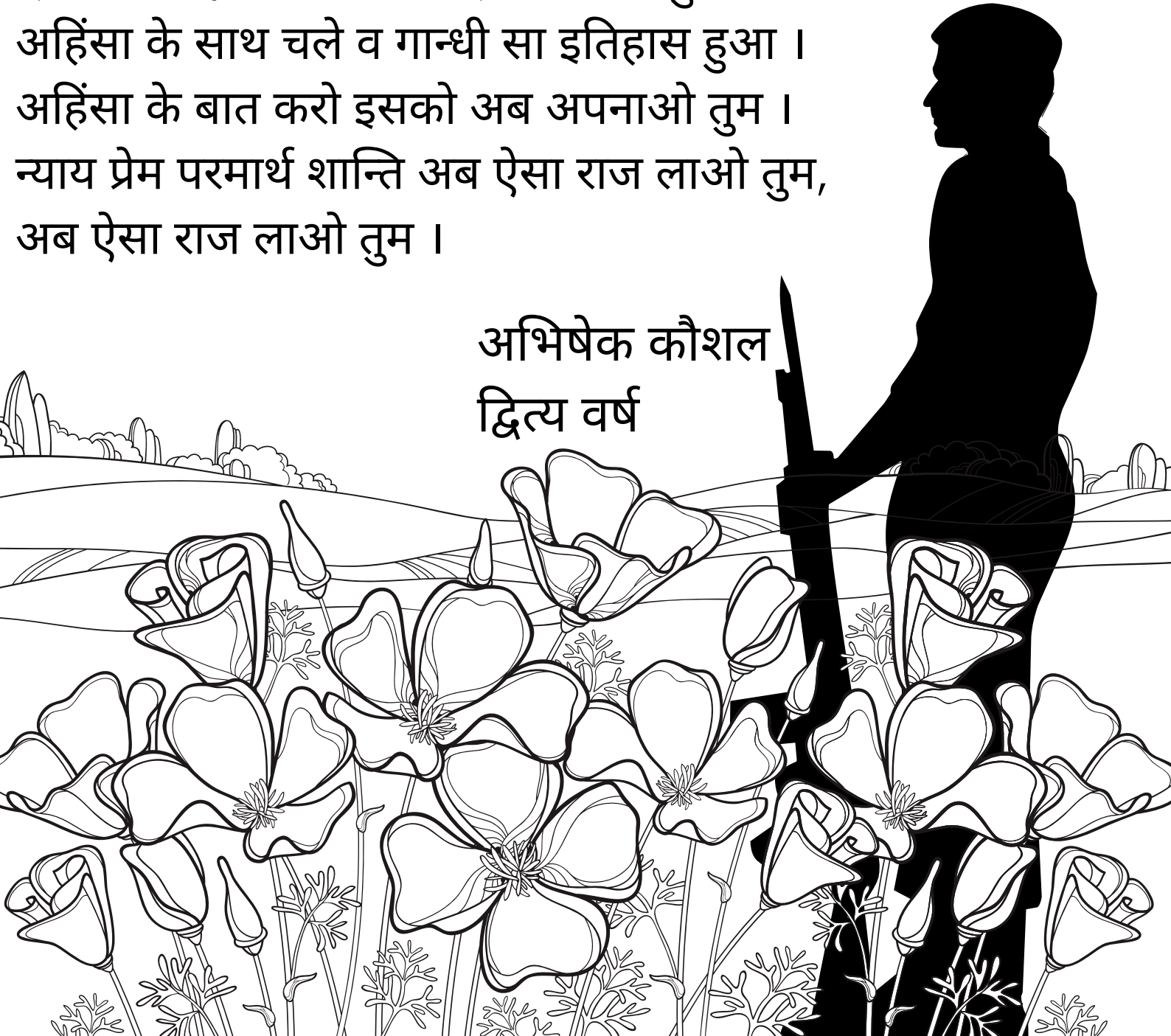
तुम अगर जंग चाहते हो तो हम अमन चाहते हैं  
अगर तुम शहीद चाहते हो तो हम देश चाहते हैं ।  
ये मंजर ये मौसम सब बर्बादी जैसा लगता है ।  
खुद का चेहरा भी अब मुझको अपराधी जैसा लगता है ।



सारे शेर जब गिरे धरापर माँ धरती का नूर गया ।  
मेहंदी चूड़ी बिन्दी महावर माथे का सिन्दूर गया ।  
पापा खेल खिलौने देंगे इसी आस मे बैठें हैं ।  
होली संग खेलेंगे बच्चे इंतज़ार मे बैठे हैं ।  
शेर बनाके भेजे थे सियार पड़ें है दिल्ली में,  
तीनो बन्दर गान्धी के बीमार पड़े है दिल्ली में ।

हिंसा पे विश्वास रखे तो देश हमरा बर्बाद हुआ  
अहिंसा के साथ चले व गान्धी सा इतिहास हुआ ।  
अहिंसा के बात करो इसको अब अपनाओ तुम ।  
न्याय प्रेम परमार्थ शान्ति अब ऐसा राज लाओ तुम,  
अब ऐसा राज लाओ तुम ।

अभिषेक कौशल  
द्वितीय वर्ष





# দার্জিলিং ভ্রমণ

কলমে

রোহন ঘোষ  
দ্বিতীয় বর্ষ

চিত্রগ্রহণ

সাপ্তিক মুখার্জি  
তৃতীয় বর্ষ

ভ্রমণ করে আমরা লাভ করি ভ্রমণের প্রকৃত আলন্দ যা ভ্রমণ কাহিনী পাঠের মাধ্যমে সম্ভব নয়। প্রাকৃতিক সৌন্দর্যের কত অফুরন্ত আয়োজন নিয়ে কত ভূখণ্ড অধীর আগ্রহে আমাদের আগমনের প্রতীক্ষা করে তা আজ নতুন করে উপলব্ধি করলাম। সেই ছোটবেলা থেকে উত্তরের হিমালয় আমার মনকে আকৃষ্ট করে। আমাদের মন চাইলেও গৃহপ্রাচীরের দৃঢ় আবেষ্টনী লঙ্ঘন করা বর্তমানে এই কোভিড পরিস্থিতিতে প্রায় অসম্ভব ছিল। কিন্তু অন্তরের এক অতৃপ্ত ক্ষুধাই আমাদের মুক্ত করে। আমরা পাড়ি দিই আমাদেরই রাজ্যের এক অন্য রূপ দেখতে - দার্জিলিং। এবার দুর্গা পূজোর ছুটিতে পৌঁছে গেলাম আমার স্বপ্নের পাহাড়ী শহরে। হ্যাঁ সত্যি স্বপ্নের মায়াজালে কেউ যেন বেঁধে রেখেছে এই ছোট্ট শহরটাকে।

পাহাড়ের প্রকৃতির চরিত্র অনিশ্চয়তায় ভরা - কখনও মেঘে ঢেকে যাচ্ছে রাস্তা, কখনও বা বৃষ্টি হচ্ছে, আবার কখনও রোদ উঠছে। পাহাড়ের প্রতি বাঁকে লেখা থাকে রহস্য রোমাঞ্চকর গল্প। এরকমই পাহাড়ী রাস্তাকে সঙ্গী করে এগিয়ে চলা দার্জিলিং পৌঁছে সূর্যোদয় দেখব না তা তো হয় না। তাই রাত থাকতেই টাইগার হিলের দিকে রওনা দিলাম সূর্যের প্রথম কিরণকে লেলবন্দি করব বলে। পর্যটকেরা এক অপূর্ব দৃশ্যের সাক্ষী হওয়ার জন্য ভিড় করে রয়েছে। হঠাৎই রাজকীয় ভাবে উজ্জ্বল হয়ে উঠল কাঞ্চনজঙ্ঘা। কেবল মুগ্ধ হয়ে প্রকৃতির এই অপরূপ সৃষ্টি দেখা আর তার স্নিগ্ধতায় স্নাত হওয়াই বোধ হয় মনুষ্যজাতির একমাত্র কাম্য। সোনালী কাঞ্চনজঙ্ঘা ধীরে ধীরে উদ্ভাসিত হল। সূর্য যত উঠল সূর্যের সোনালী আলোয় কাঞ্চনজঙ্ঘাও ততই আলোকিত হতে লাগল - সে যেন রাণির বেশে সুসজ্জিত হয়ে উঠল। মোহময়ী কাঞ্চনজঙ্ঘার এক অভিনব আকর্ষণ অনুভূত হয় প্রত্যেক বাঙালির হৃদয়ে।



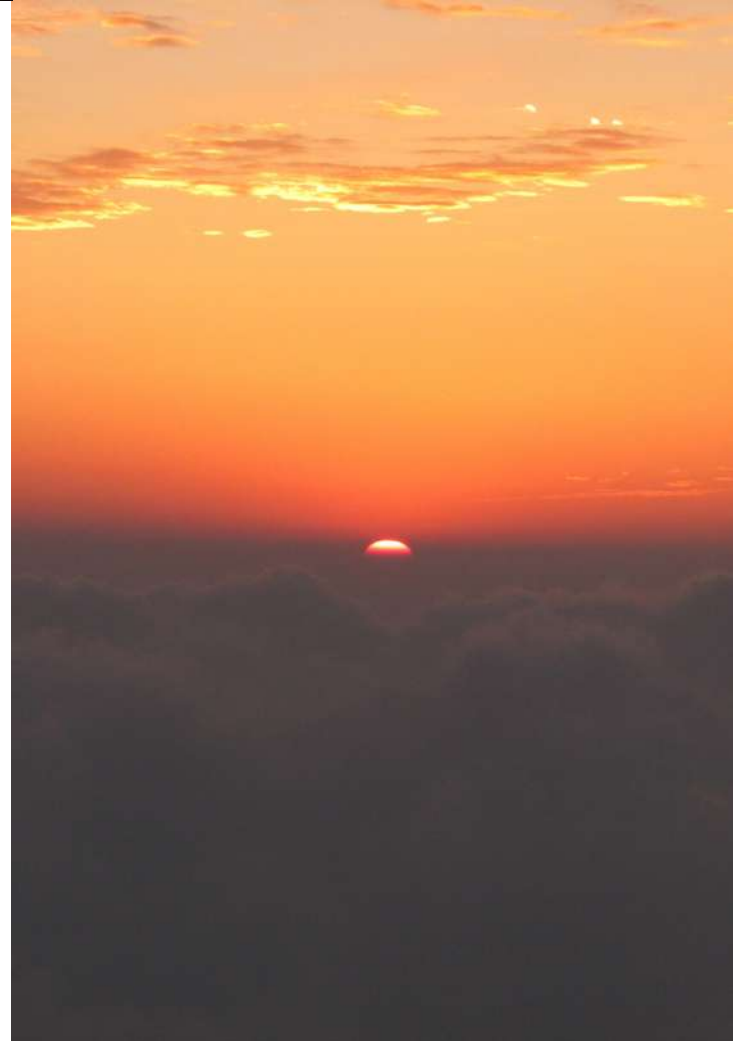
চিত্রঃ রোহন ঘোষ



বেলা গড়িয়ে বিকেল হলে পর্যটকেরা ভিড় করে ম্যালাতে (যার পুরনো নাম চৌরাস্তা)। সেখানেও এক আশ্চর্য অভিজ্ঞতা। অদ্ভুত জাঁকজমকপূর্ণ জায়গা। সেখানে কত দোকান হরেক রকম পসরা সাজিয়ে নিয়ে বসে থাকে। সেখান থেকে দূরে তাকালে মনে হয় মেঘাচ্ছন্ন প্রকৃতি যেন আমাদের হাতছানি দিয়ে ডাকছে। দার্জিলিং এর ঐতিহাসিক 'গ্লেনারিজ' আর কেভেন্টার্সে বিকেলের আড্ডার আসর কি করে ভুলে যাই।

দার্জিলিং মানে পাহাড়ের বাঁকে বাঁকে রোদ আর মেঘের লুকোচুরি খেলা। এই খেলা তো আদি অনন্তকাল থেকে চলে আসছে আর চলবেও। পাহাড়ী ঝর্ণার শব্দ দূর থেকে ভেসে আসবে। কিন্তু আমাদের ইচ্ছে থাকলেও আর তার সঙ্গী হতে পারব না। বাড়ি ফেরার ডাকে সাড়া দিয়ে বসে আছি যো। তবে দার্জিলিং-এর মোহময়ী রূপ ভোলার নয়। তাই বাড়ি ফিরে তাকে ভাষায় আঁকতে বসা।

দার্জিলিং এর আর এক আকর্ষণ ঐতিহাসিক টয়ট্রেন। পুরনো এই ট্রেন লাইন পাহাড়ের গা ঘেঁষে চলে। ১৮৭৯ সালে এই রেলপথ নির্মানের কাজ শুরু হয় এবং দুই-তিন বছরের মধ্যেই শেষ হয়। আগে সেটি জলপাইগুড়ি থেকে দার্জিলিং আসত। কিন্তু এখন স্টিম ইঞ্জিনের টয় ট্রেনটি ঐতিহ্য বহন করে কেবল দার্জিলিং স্টেশন থেকে ঘুম স্টেশনে যায় আর ফেরত আসে। হুইসেল বাজিয়ে ধোঁয়া ওড়াতে ওড়াতে যাত্রাপথে 'বাতাসিয়া লুপ' - এ ট্রেনটি কিছুক্ষণের জন্য দাঁড়ায়। বাতাসিয়া লুপে দাঁড়িয়ে যদিকেই তাকাও না কেন দৃষ্টি স্থির হবেই। আমরা হতবাক হয়ে পথ খুঁজতে থাকব পাহাড়ের মায়াজাল থেকে বেড়িয়ে আসার। লুপ ঘুরে আবার টয়ট্রেন চলতে শুরু করে। ছোট্ট টয়ট্রেন আপন মর্জিতে যেন একে বেকে ঘুরে চলেছে। যতই অগ্রসর হয় হ্যারিপটার গল্পের দৃশ্যের মত ততই পট পরিবর্তন হতে থাকে। বাস্তবিকে এই পাবর্ত্য রেলপথ যেন প্রযুক্তি বিদ্যার গৌরবের প্রদর্শন।



# मेरा बचपन

याद आता है वह समय जब आराम का नाम माँ का आँचल हुआ करता था ,  
याद आता है वह बचपन जिसमे पेड़ों पर उछल कूद करना हर्ष और उल्लास से भर देता था ,  
याद आती है वह अमिया की डाली

जिसपर झूला लगाकर हवा के साथ खेला करता था,

याद आती है उस पेड़ की छाव जो कड़ी धूप में भी हमारे चंचल चितवन को ठंढक पहुचती थी,

याद आता है वह जामुन का पेड़ जिसकी चुड़ैल की कहानियां दर जाती थी ,

याद आती है हर उस खेत की पगडण्डी जिसपे अपनी माँ से डरकर भागा करता था,

याद आती है वह गुड़ की ढली, जो दिन भर की थकान मिटा जाती थी,

याद आता है वह मिट्टी का घरौंदा जो रोज बनता और बिगड़ता था,

याद आती है वह नाव जिससे बचपन की हर परेशानी बहा दिया करता था,

याद आता है वह खिलौना जिसे देख रोना भूलकर बस खेलने को जी चाहता था ,

याद आता है वह मिट्टी का घर जिसमें मेरा बचपन गुज़र गया,

याद आता है वह सुनहरा बचपन जो बिना सुख सुविधाओं के भी जीवन का सबसे सुखद पल बन गया ,

याद आता है वह सब कुछ जो अब नहीं है ...

अभी भी शायद, वही रुका है मेरा बचपन।

अभय कुमार  
द्वितीया वर्ष



# গতি



২০০২ এর ইংল্যান্ড টেস্ট। নদীয়ার কোনো চাকদহ শহর থেকে ভারতের জার্সিতে ক্রিকেট খেলার সুযোগ পেল এক বাঙালি মেয়ে। জানুয়ারীর সিরিজেই টেস্ট ও ওয়ান ডে দলে অভিষেক হলো তাঁর। একে ক্রিকেট, তার ওপর একবিংশ শতকের গোড়ার দিক ,যেখানে মানুষ ধীরে ধীরে পুরোনো খেলস থেকে বেরিয়ে আধুনীককরণের পথে এগোচ্ছে , সেখানে এক বাঙালী মেয়ের ক্রিকেটে পদার্পন... কেই'বা ভেবেছিল একদিন রূপকথা হয়ে যাবে! চাকদহে ক্রিকেট কোচিং না থাকায়, মেয়েটা কলকাতা আসত প্র্যাক্টিস করতে। '৯২ এর বিশ্বকাপ যার কিশোরী মনে ক্রিকেটের ভূত চাপিয়েছিল, কে জানত একদিন সেই মেয়েটাই বিশ্বের তাবড় তাবড় বিপক্ষের ভূত নামাবে। ঠিক ধরেছেন। চাকদহ লোকালে বাড়ি ফেরা মেয়েটা নিজের জেদ, সংযম আর অধ্যবসায়ে পাদানিতে ভর করে কবেই চাকদহ-এক্সপ্রেস হয়ে গেছিল, তা আজকের দিনে কল্পনা করাও সময়ের অপচয়।

ঝুলন গোস্বামী... বাঙালি মহিলা ক্রিকেট বলতে জি.কে. বইতে যার নাম শুনে বড়ো হয়েছে এখনকার ক্রিকেট কচিকাচারী।

অতিসাধারণ মধ্যবিত্ত ঘর থেকে জীবনের জন্য যে দৌড় শুরু করেছিল মেয়েটা, সেই দৌড়ই তাকে পৌঁছে দিয়েছিল ভারতের মহিলা ক্রিকেট ইতিহাসের অন্যতম সেরা ফাস্ট বোলারের সারিতে। তবে ঝুলন শুধু বোলার নয়, বোলিং অলরাউন্ডারও। ৫ফুট ১১ ইঞ্চির শরীরটা যখন তীরের মতো ছুঁড়ে দিত সবুজ গালিচার ওপর শক্ত ক্যাম্বিজ কিংবা রক্তিম ডিউজের সীম-পেস , সামনের ব্যাটসম্যানদের কাছে সেই প্রশ্নের জবাব থাকত না কোনো। বল উইকেট ভেঙে চলে যেত কোনো এক অচেনা গন্তব্যে, যেখান থেকে শুরু করেছিল ঝুলন।

ক্রিকেটীয় গডফাদারের বাইরে থেকে শুরু করা লড়াইটা একদিন ভারতের 'ইতিহাস' লিখে ফেলবে কেউ ভাবেনি! যে দেশে নারীদের পণ্য ভেবে বিক্রিয়ে দেওয়া হয়, শরীর , পোষাকের মাপ দিয়ে বিচার ব্যক্তিগত জীবন , স্রোতের বাইরে গা ভাসালে যে সমাজে নারীদের দেগে দেওয়া হয় নানা কু'নামে, হাজার একটা নিয়মের শেকল পরিয়ে দমবন্ধ করে দেওয়া হয় সুপ্ত প্রতিভা গুলো, সেই সমাজেই ঝুলন গোস্বামী আসলে এক নরম ঝাঁঝালো আলো। গাঁ-গঞ্জের ঘিঞ্জি বস্তি থেকে রাজপথের ঝলমলে জনজীবনে যে আলো মিটিয়ে দেয় তথাকথিত নিয়মের অন্ধকার। যাদের লড়াই ক্রিকেটের বাইশ গজ পেরিয়ে জীবনের মাইল মাইল রাস্তায়, ঝুলন তাদের কাছে 'মাইলফলক'; পথ হারালে কাজে লাগে।

জেদ, খিদে আর আত্মপ্রত্যয় মফস্বল থেকে উঠে আসা এক গতিকে পৃথিবীর ত্রাস বানিয়ে দিতে পারে, ঝুলন না থাকলে বিশ্বাস হতো না। দুলতে থাকা ছন্দবদ্ধ শরীর নিয়ে ছুঁড়ে দেওয়া ১১৫-২০ এর গতি ভেঙে দিয়েছিল বিপক্ষের দস্ত। দিচ্ছেও... ভেঙে ফেলছে নারীদের 'তথাকথিতের' সংজ্ঞা।



যারা মনে করে বাঙালি দশটা পাঁচটা অফিস, লুচি ঘুগনি আর রোববারের পাঁঠার মাংসের বাইরে কিছু বোঝেনা, যারা মনে করে নারী মানে স্কুল শিক্ষিকা নইলে কর্পোরেট ওয়ার্ল্ডের গোছানো চাকচিক্য, যারা মনে করে বাঙালি শুধু মুখেই সব পারে, কাজের বেলায় অকর্মার টেকি, যারা ধরেই নেয় বাঙালী মেয়ে মানেই কেবল খুন্টির স্বাদ, সাদামাটা খাতাকলমে লিখে রাখা হিসেবী জীবন; 'ঝুলন' তাদের গালে এক রুচীশীল থাপ্পড়, যে দেখিয়ে দিয়েছে 'অসম্ভব' শব্দখানা আসলে 'সম্ভব' দিয়েই তৈরী।

তাই বিবেকানন্দ পার্কের নেটে ঘন্টার পর ঘন্টা ঘাম ঝাড়িয়ে যে প্রতিভায় শান দিয়েছিল মেয়েটা, সারাবিশ্বের কাছে একদিন সে তো দাপিয়ে বেড়াতোই, একথা বলার অপেক্ষা রাখেনা। ফলস্বরূপ ২০০৭ এর আইসিসি ওমেনস প্লেয়ার অফ দ্য ইয়ার, ১১ তে পি চিদাম্বরম ট্রফি, ১৬ তে ওয়ান ডে তালিকায় শীর্ষস্থান দখল করা মেয়েটার নামে ২০১৮ সালে ভারত সরকার একটা পোস্টকার্ডও ইস্যু করে। আন্তর্জাতিক স্তরে ৩৫০ এর বেশী উইকেট নিয়েও যে দৌড় ছুটে চলেছে জীবনের লং রান আপে, আটত্রিশ বছর তাঁর কাছে কেবল একটা সংখ্যাই মাত্র।

পদ্মশ্রী ঝুলন আসলে একটা গতিশীল আঙনের গোলা, লং বোলিং এন্ড নিয়ে যে ছুটতে শুরু করে, আর তারপর এগিয়ে এসে ছুঁড়ে দেয় ক্ষিপ্ত বেগে, আর তাঁর আঁচে শুদ্ধি হতে থাকে মফঃস্বলের কত বাঙালি মেয়ে-যারা কোনো একবার পাড়ার গলিতে ঝুলনকে দেখেছে, সহজ নির্লিপ্তভাবে হেঁটে যেতে।

দিনের পর দিন নিয়ম করে ছুঁড়ে চলা ঐ আঙনের গোলায় আত্মশুদ্ধি করে নেয় এই সমাজের সেই তারা, যারা এককালে আঙুল তুলেছে এই বলে, "মেয়ে মানুষের পাখনা গজিয়েছে, ক্রিকেট খেলবে!", ঐ আঙনের তাপে সামান্য স্বস্তি পায় বেপাড়ার মিনুরা, 'ছোটবেলা থেকে টম বয়দের মতো ক্রিকেট খেলে বলে' কত না টিটকিরি শুনতে হয়েছে, তবুও যারা চায় ঝুলনদি'র মতো হতে!

ছুঁড়ে দেওয়া ১২০ এর গতিতে শক্তি পায় ন'বছরের ঝুম্পা যে পাড়ার দোকানে ব্যাট কিনবে বলে টিফিন বাঁচিয়ে টাকা জমাচ্ছে; কত গল্প চলে আসছে, এই জীবন্ত রূপকথাকে কেন্দ্র করে। নদীয়ার "ঝুলনদি" আসলে এই সকল গতিহীনাদের জীবনে দুর্বীর এক স্রোত! যাদের জীবনের ধারা থমকে গেছে, তাদের কাছে 'ঝুলন গোস্বামী' এক ভয়ঙ্কর পাহাড়ী ঝর্ণা, যে ভেঙে চুরমার করে দেয় সমস্ত বাঁধা! দুকুল ছাপিয়ে বিছিয়ে দেয় নরম শীতলপাটী।

এভাবেই ছুটতে থাকুক ঝুলন, মফঃস্বলের গালি ক্রিকেট থেকে রাজপথের সবুজ গালিচা হয়ে ইডেনের বাইশগজ আর লর্ডস এর মায়াবী কংক্রিটের সিলেক্টেড বোলিং এন্ড, ঝুলনের গতির সাক্ষী থাকুক অগণতি ক্রিকেটমুখী কিশোরীর দল। পুরুষ শাসিত ক্রিকেট ভারতীয় সংস্কৃতির ধ্রুপদী সংগীত হলে, ঝুলন গোস্বামীও তার মহিলা ক্রিকেট নিঃসন্দেহে খোলা গলায় গেয়ে ওঠা 'লোকগান'; যার গতিময় সুরধ্বনিতে শুধরে যায় সমস্ত গতিহীনাদের স্তব্ধতা, নৈরাশ্য, হতাশাও। নতুন করে স্বপ্ন দেখে তারা, যারা অবচেতন মনে ঝুলন হতে চেয়েছিল, চাইছেও...চাইবেও...

রোজ...

চকদহ এক্সপ্রেস ছুটে চলুক। পথ দেখাক আগামীদের।



# অভ্যাস



পুরোনো যা অভ্যাসগুলো, শিখছি আবার নতুন করে,  
আবার হাঁটি দু বছরের ফেলে আসা পথ,  
আবার ফিরি দু বছরের শত্রুতা মেটাতে,  
আবার ছুটি ঘুম ঘুম চোখেতে কলেজ চটপট,  
আবার বসি ক্যান্টিনেতে আড্ডার আমেজে,  
আবার আটকা রুবির মোরে অশেষ অটোর লাইন,  
আবার লুকোই প্রফেসরের কঠিন নজর থেকে,  
আবার চোকাই লাইব্রেরীতে জমানো লেট ফাইন,  
আবার ক্লাস কেটে বেরোনো বন্ধুদের সাথে,  
আবার খেলা কলেজ মাঠে যখন সুযোগ পায়,  
আবার পরিশ্রান্তিতে, রোজ ফেরা সন্ধ্যতে,  
আবার বুলি বাসে ট্রামে, লাগে অসহায়।



সৌম্য বিশ্বাস

তৃতীয় বর্ষ



# SHADES

*“The aim of art is not to represent the outward appearance of things, but their inward significance”  
-Aristotle*



*Supritey Dey, 3rd Year*



*Rimita Majumder, 2nd year*



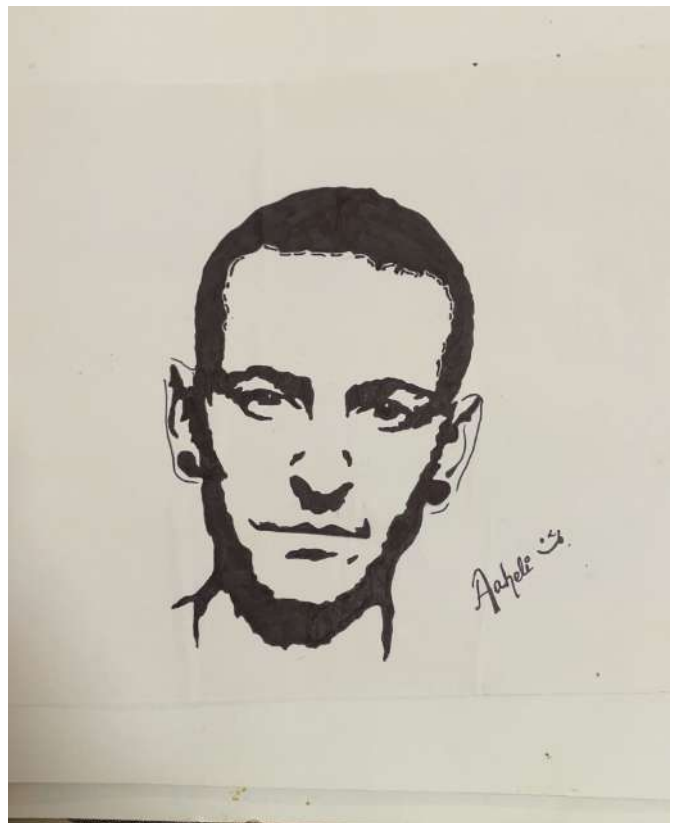
*Suroj Kumar Mondal, 1st year*



*Swarup Kumar Mondal, 2nd year*



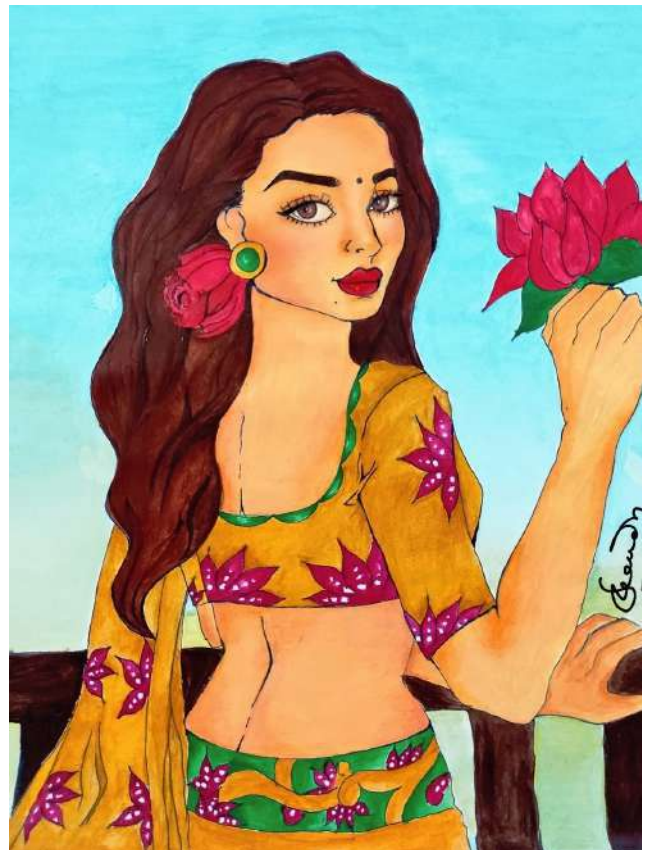
*Nishant Sinha, 2nd year*



*Aaheli Maity, 3rd year*



*Taniya Banerjee, 1st Year*



*Shubhangi Nandy, 2nd Year*



*Riya Kundu, 3rd year*

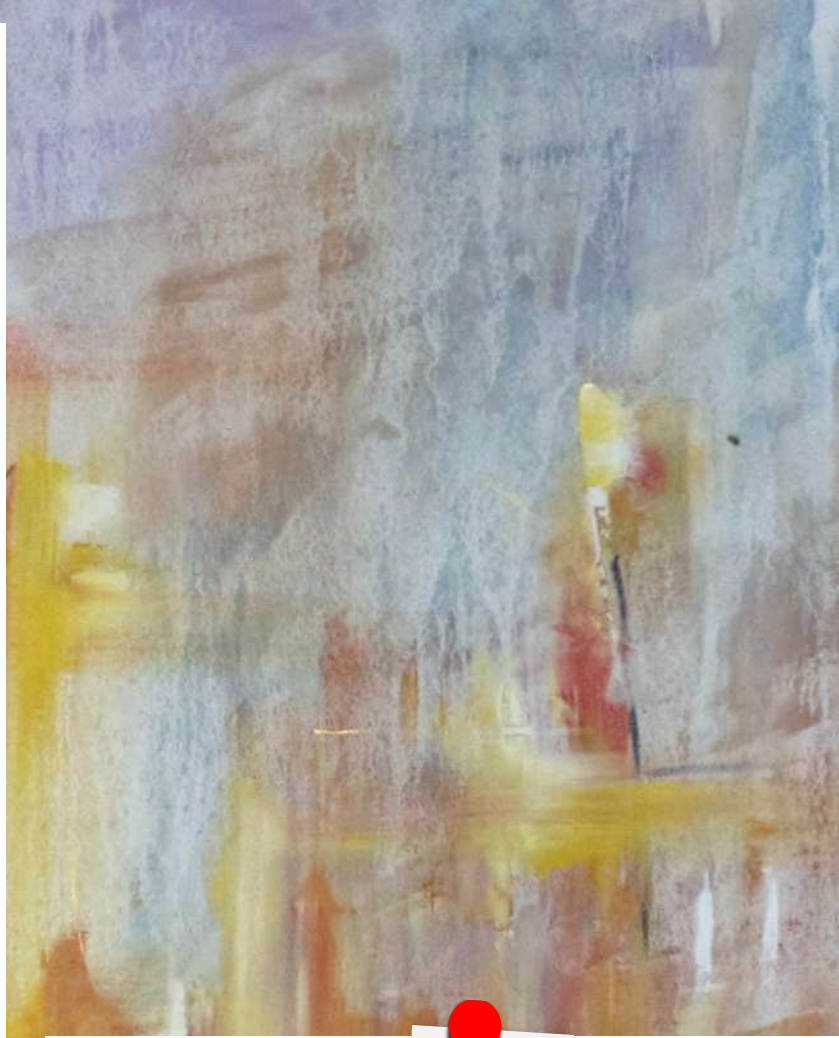


*Samrit Bhowmik, 2nd year*





*Soumyadip Bera, 2nd year*



*Meghna Bose, 1st year*



*Chandan Maity, 1st year*



*Snigdha Paul, 1st year*



*Sutapa Trivedy, 1st year*



*Sandipan Bairi, 1st year*



*Prithvisha Gupta, 1st year*



*Akash Saha, 2nd year*



*Ayushi Nayan,  
1st year*



*Antarupa Chakraborty,  
2nd year*

"You don't take a photograph, You make it"

-Ansel Adams

# SHUTTERBUG

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01100463544

*Devotion of a devotee etched into a shutter*

**Antarupa Chakraborty, 2nd Year**



01100463544

• *A bird in a cage is not half a bird*

**Sarthok Debnath, 1st Year**



*Without patience, a sailor I would never be*  
Arijit Goswami, 2nd Year



*Essence of tranquility, I kneel to thee*  
Iman Chakraborty, 1st Year

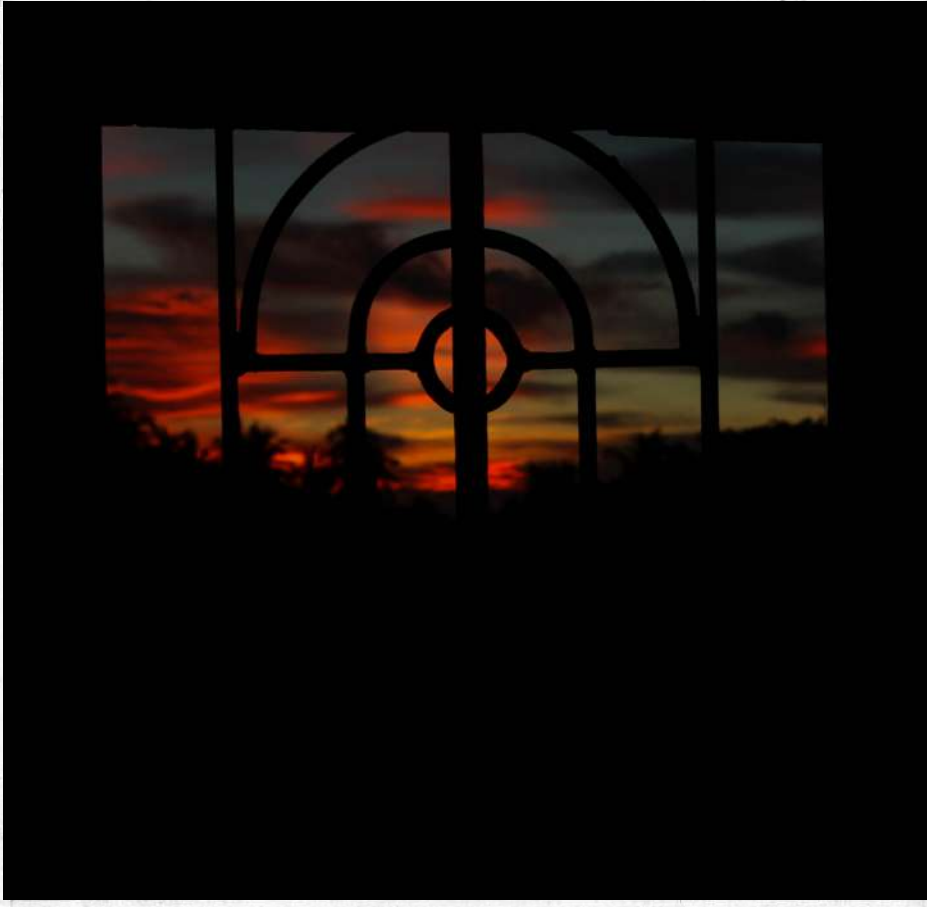




*Ambling into oblivion till horizon*  
Sagnik Mukherjee, 3rd Year



*Where dreams await to be achieved*  
Sandipan Bairi, 1st Year



01105163544  
*Twilight drops her curtain down and pins it with a star*

**Rajdip Mukherjee, 1st Year**



*Perched on the bark, wondering*  
**Debasmita Paul, 1st Year**



*Aesthetic beauty of flowers can never be amiss*

**Ayushi Nayan, 1st Year**



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*Creativity individuates itself*

**Biswaroop Joardar, 2nd Year**



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*Sunsets prepare us for another sunrise, another hope*

**Meghna Bose, 1st Year**



2110G463544  
*Elucidating what heavenly truly remarks*

**Rohan Ghosh, 2nd Year**



*If depiction of magnificent was a shot*  
Amab Dhara,1st Year



*. Flames lighten the Melancholy of our soul*  
Snigdha Paul,1st Year



# The World Today



“Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has.”

*Margaret Mead*



# Youth in Indian Politics

By Akash Manna, 1st Year

.....  
Democracy means “By the people, of the people, and for the people”  
.....

Democracy is a term very familiar to all of us, introduced to us in the 6th or 7th grade but do we even know the actual meaning of it? Democracy means the form of governance in which the people of a nation gives their verdict by choosing their representative to form the government. A fantastic model to run a country like India. But is it actually happening the way it was planned by our

great leaders who drafted the constitution?

Democracy means “By the people, of the people, and for the people”, but now it has just been limited to “by the people” which is also just a formality.

India is so large a nation that elections continue every year in some part of the country or the other.

But is there any election that is free from violence? Incidents like political killing, booth capturing, and rigging continues to be the headlines of the newspapers and electronics media. The day of polling must be celebrated as a festival, not as a “Judgement Day”.

Coming to “of the people” is it even true? People are contesting elections, not from their parent constituencies, then how can that person even know the local problems to be solved. And it was never “for the people”, it was always the greed for power and money that kept these politicians to their chairs.

Young citizens like us get their right to vote at the age of eighteen but do they even have the maturity to be the decision-maker in a country like India? There is a very well said line “Charity begins at home”, so do we have that democracy in our homes. And the answer would be no. Democracy is not just decision-making, it is also the right to ask questions. When we don't have the courage to ask questions to our parents who manipulate and influence all our decisions be it financially or by

their guardianship how can we be a generation who will run future India? The media which is called the fourth pillar of democracy has been made a caged bird. The things that we hear and feel are the things that they want us to hear and feel. The young generation must question this. There is a trend that I observed in the recent Civic polls, my friends keep saying “Why cast vote?”, “How is my vote going to make a difference?” and so on.

---

**When we don't have the courage to ask questions to our parents who manipulate and influence all our decisions be it financially or by their guardianship how can we be a generation who will run future India?**

---

Now if the educated young generation abstains from voting, naturally the uneducated mass who are influenced easily by favours in return have their margin high and have a corrupt person elected. Yes, that one vote of yours matters. When you enjoy the fundamental rights given to you by the constitution then you must faithfully perform the



duties too and casting your vote is your duty. People keep blaming “Politics is dirty” but have they ever tried to clean this dirt off? We easily say “that leader is corrupt” or “that representative doesn’t work” but did we ever think of the solution to this? Students of my age just think of completing studies and going for a dream job or going off to a foreign country to work or for higher studies but no one thinks of reforming the political setup in India. From our childhood days we are taught how to become good employees, why do they not teach us how to employ people, and how to think differently to bring about change in society. We all discuss what we want to be in the future or about our profession, people say, doctor, engineer, and lawyer why no one says Politician or Parliamentarian? If we the young generation abstain from becoming the representatives

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Students of my age just think of completing studies and going for a dream job or going off to a foreign country to work or for higher studies but no one thinks of reforming the political setup in India.

---

then naturally a corrupt person with criminal records will contest and win.



People here are not selecting the best candidate they are just voting for the person who is a less evil-doer than the other.

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If we the young generation abstain from becoming the representatives then naturally a corrupt person with criminal records will contest and win.

---

We collectively need to change this. People say “how are we being influenced by it, we are just students”, yes my friend you are getting hit by it every moment. From coming to college in the morning when you pay for the high-priced fuel to the cost of food you eat and finally to the placement you want all are being controlled by the government. Petrol, diesel, LPG, refined edible oil all prices are hiking, have you ever stopped to think?



So many unemployed engineers, so many working employees shunted have you ever questioned? So many migrant workers died did your heart not cry? Metro infrastructure delayed have you ever protested? No. Fire is raging my friend and these politicians are fanning it. Don't wait for it to be a firestorm to blow us all and reduce us to ashes.

But all politicians are not bad. Our India has had many statesmen, fantastic orators, and diplomats. We are a growing country and don't let it down by electing some of our corrupt leaders. Together we can form a new India, a stronger and truly democratic one.

*Fire is raging my friend and these politicians are fanning it. Don't wait for it to be a firestorm to blow us all and reduce us to ashes.*

# Life and Death and the Quantum wave Equation

You're so high in the head you do not see what is in front of you

The **quantum wave equation** : The energy and position of electrons in space and time taking into account the matter inside the atom. Roughly meaning you may be antimatter but you don't know about it.

The **second law of thermodynamics**,

“ Everything revolves around chaos and entropy. ”

Perception of anarchism in the contemporary spirit of the regality amidst the abrupt conflict amidst nations, are heartfelt in thoughts faster than a neo sub urban bullet train in rainy Tokyo. The concept of a prying pseudo identity related to the struggles of vindictive policies upheld in international forum, completely unrelated the idea of the nature or identity o the conflict is perhaps the essence of the true nature of the conflictive and contemplative though process attached to the idea of the struggle iwn the first place. When Seneca said,

**“Man suffers more from his imagination than his reality”**,

It would roughly mean that a student from heritage would be suffering more from the idea of availing an auto rickshaw rather than availing one.

So considering that even the idea of figurative freedom of speech exists, the freedom to speak on the conflicts on the international forum are debarring in nature as the ideals of a thought are non-conforming to the greater principles which are authoritatively defined by the cantankerous powers ruling over the common man.



The Houthi movement, or the liberation of Libya, the coup in Burma , the liberation of Hong Kong or acceptance of Taiwan as a nation or invasion of specific countries by so called proletariat powers ins the descriptive measure of the actions of power on a conforming yes man. The distinction between rebellions and revolutions are not in the mannerism of the event happening but the identity of the struggle in the first place.

Conforming to the idea of saving grace by saying amen or silently passing by while seeing a wrong doing is also a matter of heinous crime for the identity of the silence which is attached to the event happening in the surrounding tis the catalyst which silently promotes the action which is happening around.

**CRIME**

Zelensky, and his over reliability on the west is the reason for the cataclysmic set off in Ukraine in the first place.



While having opinions are important being opinionated is also the identity of the individual in the contemporary heading everyone is conformed under. Changing political ideals and viewpoints in instances while being incentivized by meager amounts which amount to less than the principles of man are the reason why ideals are wavy in nature.

“ Thus principles are never about Life and Death and the Quantum wave equation. ”



By Rajarshi Paul  
2nd Year



# China and the US:

## *A Race for Influence*



In 2022, The People's Republic of China continues to go for consolidation of its regional influence through various methods like transactional diplomacy, and the United States of America must take advantage of the opportunities in countries on China's periphery that could advance geostrategic security and economic interests, all while pushing back against China.

At the beginning of 2021, as the United States of America embarked upon a presidential transition after four years of unconventional engagement with China, President-elect Biden took office at a time when the bilateral relationship between the two nations was more adversarial than it has been in past decades. With growing awareness and recognition in Washington that China currently poses the most significant long term threat to the American civilization, and will continue to do so for the foreseeable future, competition between the powers will definitely intensify in a

number of thematic arenas and regions over the upcoming years, even if the tenor of the exchange shifts somewhat.

This competition is already playing out all around the globe, specially as China pushes to further expand and redefine its sphere of influence in various regions ranging from sub-Saharan Africa to South America in a 21st century iteration of the Cold War mad scramble. Until recently, the United States, reluctant to return to the alignment mindset of the Vietnam era, has refrained from making conspicuous competition for influence the centerpiece of its foreign policy strategies, but given developments in the last four years, the incoming administration should take advantage of conditions that could advance US geostrategic security and commercial interests, all while pushing back against China. Countries on China's periphery will offer the best examples of this opportunity this year.

To put it simply, the pressure points on China's periphery that present opportunities for the United States of America, regardless of whether they make headlines in the Western media, represent consequences of China's unyielding quests for :

- **economic growth via autocratic mercantilism**
- **ethnic and cultural homogeneity**
- **consolidation of power in Beijing.**



In recent times, as highlighted by issues such as the plight of the Uighers in the Xinjiang province, high profile national defaults on **Belt and Road Initiative (BRI)** loans and loan defaults of big Chinese companies, these pressure points have become more and more visible.

Figure 1 Per capita GDP (purchasing power parity) of selected economies during period of most rapid growth index = 100 at starting point

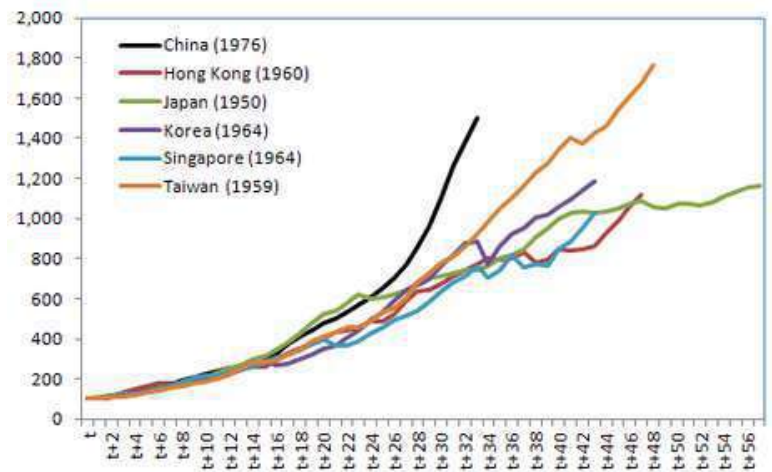


FIGURE 2 Overseas Contracts by Value USD million, number of projects (RHS)



Source: MOFCOM. 2020 numbers are through October 2020.

However, the challenge for the Western governments and private sector entities will be to appropriately calibrate the perfect strategy based upon a realistic understanding of China's long term goals and how the headlines of the upcoming months fit into the broader narratives.

After many years of strained growth and the initial shock of the **COVID-19** pandemic, China's economy is showing signs of recovery, but its relationships with many of its neighbors have become increasingly pinched and unfriendly to say the least. The main source of much of this tension is the Belt and Road Initiative, which, when it was announced in 2013, was hailed as a much needed investment vehicle for delivering infrastructure and economic development to many of China's neighboring countries, as well as to countries with significant economic and resource potential farther afield. Now, as concerns about Beijing's influence steadily creeping into the domestic politics of its neighboring countries mount and the much prophesied boosts to local economies and labor forces fail to materialize, BRI investments are met with increasing skepticism, if not total hostility. Nevertheless, BRI remains a strategic priority for China and there is little evidence to suggest Beijing is going to change tactics in 2022, as it wants to consolidate regional influence through transactional diplomacy policy.

In one way or another, China is on a rapid collision course with more than ten of its direct neighboring countries including India, Russia, Pakistan, Vietnam, Myanmar, Mongolia, Taiwan, Laos, Kazakhstan and Kyrgyzstan. While this list is not exhaustive with respect to regional pressure points for China, it provides a representative sample of the types of challenges that China is poised to encounter on its periphery in the years to come and a window of opportunity that Western powers, namely the United States, have to capitalize on seemingly regional power struggles to stay ahead in the game.



Taiwan will be the pressure point that Beijing pushes to test the limits of Biden Administration's Asia policy relatively early on and nominally in response to Trump Administration's recent advanced arms sales to Taiwan.





In terms of policy shifts, this year is unlikely to produce any major shifts in Taiwan internally: **there will be a continuation of policies to build economic independence from Xi Jinping's China, largely through the trade diversification efforts, and increasing pressure on Taiwanese politicians of various political parties to distance themselves from China's objectives.**

Like India, Taiwan presents American and international private sector actors with an attractive opportunity for an alternative to China when it comes to heavy manufacturing, particularly for information and communications technologies. The challenge for the United States of America will be to maintain the Trump Administration's unapologetically pro-Taiwan posture while keeping US troops out of direct conflict in the region with China.

Events over the last years, including the confrontation between Chinese and Indian armed forces in the summer of 2020 and the finalization of the Basic Exchange and Cooperation Agreement (BECA) with the United States of America, have signaled a shift in India's regional geostrategic posture. **Casting off its long standing non-aligned status, additional security cooperation with Australia and Japan and BECA put India in the US camp definitely—**

a change that also indicates China instead of Pakistan is India's number one national concern. In 2021, **India** will continue to lead the pack among China's neighbors when it comes to challenging border disputes with China, as well as **in pushing back against Chinese technological and socio-economic encroachment, keeping up its bans on Chinese applications and applying elevated scrutiny to other forms of Chinese-backed investments.**

China and India's Disputed Border



Source: Adapted from U.S. State Department and Natural Earth.







While trade between India and China will be required to persist because neither party can afford to have a complete breakdown, the Indian government should focus on bolstering India's attractiveness to the world as a supply chain resource and manufacturing hub alternative to China, given the souring appeal of China in the wake

of the COVID-19 pandemic will and hostile attitudes toward Western national interests. This will be a very heavy lift given the breadth of improvements required in physical infrastructure , ease-of-doing-business regulations and bureaucratic changes, but remains an area capable of paying financial and security dividends in the long term.

**By Debangshu Kantha  
2nd Year**

# SRI LANKA IS BLEEDING!

Soumalya Ghosh, 2nd Year

The country has succumbed to poor governance, corruption and a lot of foreign debt. It is battling one of the worst economic crises since its independence. This week has seen the country imposing a state of emergency, social media websites being banned, and a curfew being declared in the island country.

Thousands of people have come out on the street protesting. The country is suffering from scarcity of food, fuel and basic commodities; even the rich can't afford these. So, you have already guessed it by now. The topic is Sri Lanka's downfall.

## Why Sri Lanka?

## Why learn about their crisis?

Well, I gotta tell you that the failure of Sri Lanka has got some crucial pointers by which we can keep an eye on our government so that we don't end up like them.

“ the country imposing a state of emergency, social media websites being banned, and a curfew being declared in the island country

”



## The Genesis

### Looking at its recent past

7.7% of the country's GDP is contributed to by the agriculture sector. The share of services is almost 73%. Within services, share of trade, hotels and transport has comprised 30-35 percent of GDP. [NOTE: This information is key to understanding the role of these sectors in the recent turmoil.]

### Now let's go to its recent past.

As mentioned in the intro, poor, random and instant decisions made by the ruling Rajapakshas set in real motion all of this although the country imported more than the

exports since very long, resulting in a negative CAD. Sri Lanka used to sail on the brink of crisis ever since their independence due to long lasting civil wars and political unrest throughout the country. 2019 onwards, the country is going all south; everything caught motion.

In 2018 Sri Lanka was one of the top destinations of tourism. Almost 2.3 million tourists visited the country. About 12-13% of the country's GDP relied on the tourism industry. On 2019, multiple bombings took place on churches and hotels across several cities.



This is the Easter Day Bombing. 269 people were killed and among them 49 were foreign nationals. This one day wrecked the tourism industry. It was carried out by suicide bombers comprising of Sri Lankans and local Islamic terrorist group. This led to vandalising homes and mass anti-Muslim outrage across the country. Anti-Muslim protests repeated throughout the country many times in 2018 too. In response to this, the

Government decided to block Facebook and WhatsApp to stop the "rumours" spreading. But this only heightened the religious tensions.

**269 people were killed and among them 49 were foreign nationals.**

And then came the pandemic and now the war in Europe (the war is significant here because most of foreign tourists came from Ukraine and Russia). This is how an entire sector collapsed.

**Wait! It's nothing yet. It was just one example.**

In the 2019 elections the then presidential candidate promised to revive the economy rapidly, in his campaigns. He also promised to cut the VAT (Value Added Tax, it's a tax levied on goods or services sold) down to half. The logic was, if people pay less taxes, they would be willing to spend more and with increase in consumption there would be greater revenue, thus greater economic growth. There is nothing wrong in this other than the timing.



Within 3 months the pandemic hit. With worldwide lockdown, there was no way people would consume more.

**In April 2020,**

The fertilisers industry in the country got hard hit when again the president Gotabaya Rajapaksa declared a nationwide ban of fertilisers and decided to go **“100-percent organic.”** overnight. Despite the hopes that organic methods can produce comparable yields to conventional farming, domestic rice production fell 20 percent in just the first six months.

“

**Sri Lanka had to import rice with 450 million USD**

”

The long self-sufficient producer of rice was forced to import rice. It was estimated that the import of fertilisers cost up to 400 million USD. So, a ban on fertilisers was thought to reduce pressure on their foreign currency reserves. But the result of organic farming was completely opposite. Sri Lanka had to import rice with 450 million USD, driving up domestic prices of their staple food (rice) by 50%. Their biggest export commodity—Tea got hard hit. This low production of basic commodities led to massive imports of them, resulting in huge fiscal deficits, declining their foreign exchange reserves.

Sri Lanka currently holds as low as 2.3 billion dollars in foreign currency reserves, which if compared to January 2020 is 70% less. This means that Sri Lanka has the money to import basic commodities only for a month. Now due to inadequacy of foreign currency reserves, the cost of things are going north. Inflation has hit a record of 25%.



## The Trap

So, the question stands, where have all the foreign reserves vanished? It's not only the imports, but also the debt Sri Lanka is repaying.

## WHAT DEBT?

After the 2004 tsunami hit, they have been trying to rebuild infrastructure and that came from huge public expenditure. After the 2009 civil wars, the Government decided to spend massively on infrastructure development and real estate. They decided to rebuild dormant properties like the Hambantota and Colombo port cities. These Ports and Airports have never been a great asset for the Sri Lankan Economy.

Then came China with loans to help Sri Lanka build those infrastructure. Many Chinese companies took over and as many as 50 separate Chinese projects are carried out on the Sri Lankan soil. The Chinese merchants came with 1.1 billion USD in cash to become a major shareholder in these ports in a 99-year lease. The Chinese always show up and give massive loans to economically poor countries who can't get such loans from the World Bank or other countries. But all these come at hidden costs. Chinese companies were given the contracts for infra development, where only Chinese labourers would work and the worst part is that these Chinese companies would actually overbill the borrower (in this case Sri Lanka) if they think the project needs more money. This money was used by the Sri Lankan Government to bolster the foreign exchange reserves

The country has reported foreign debt of about 35million USD in 2021 out of which almost 10% comes from China. And then came the masterstroke, with the Credit rating agencies downgrading Sri Lanka, they were locked out of the International Capital Market. And so, they relied solely on Foreign Exchange Reserves for debt repayment. In 2020 the government had to repay debt by 95% of their GDP.



What can one make of an economy where the forex reserves consist mainly of borrowings from abroad!

## The Endgame

"Sri Lanka needs about \$3 billion in external assistance within the next six months to help restore supplies of essential items, including fuel and medicines, to manage a severe economic crisis," its Finance Minister told Reuters on Saturday.

Hasn't the government taken any action? told Reuters on Saturday. Hasn't the government taken any action? Yes, they have.

The Government has hiked interest rates by 7% to get more interest from the borrowers.

The Government has decided to “...hike taxes and fuel prices within six months and seek to reform loss-making state-owned enterprises, in an effort to fix public finances...” It hopes to stop the fast decline of forex shortages by taking government to government loans, currency swaps with foreign central banks etc.



Using the government to government loans, the Government would use their currency to exchange foreign currency to repay the debt. India has given loans worth 1.9 billion USD and China worth 1.5 billion USD. Our government is also supplying fuel there, putting together a 400million USD currency swap agreement. These aids however will only try to tackle the crisis for a short term, but not for the long term. That's what the IMF says. It believes that “these are unlikely to put the economy back on a stable and sustainable path.”

“

**India has given loans worth 1.9 billion USD and China worth 1.5 billion USD**

”

## **So, what's the finale of this pile-up drama?**

Sri Lanka now needs a bailout (financial assistance) from the International Monetary Fund. But the help will come with great restrictions. For example, look at what happened to Greece during its economic meltdown. They were asked to stop subsidies, reduce political spendings, stop welfare schemes, privatise loss making public companies, open up borders for more trading partners etc. These seem to come full-circle on Sri Lanka too if they are ready to initiate a bailout.

And most importantly, the IMF will try to give more powers to the CBSL (Central Bank of Sri Lanka), to try to bring the economy back on a stable path in the long term. Remember this is the institution responsible for generously giving the government loans, when it should have asked the government to raise taxes and increase revenue.





## History repeats itself.

This same thing happened in India in 1990. Our Forex reserves were down to less than 6 billion USD and this was enough for 2 weeks of the country's imports.

But unlike the Sri Lankan Government, the then India govt. along with the RBI, took immediate and long-term measures to mitigate this crisis. Our government did everything that the Sri Lankans didn't.

They pledged gold to the Bank of England and the Union Bank of Switzerland raising around 600 million USD from this. And then came the game changer: budget of 1991; in which the then Finance Minister Manmohan Singh unveiled massive changes. For example, monopolies of many public sectors were ended allowing easier entry and restructuring of businesses. Some sectors were untouched due to national security threats. This attracted massive foreign investments.

The Government also increased corporate taxes by 5% and introduced tax deductions from bank deposits. Prices of cooking gas cylinders, fertilisers and petrol were increased and subsidies on commodities like sugar were removed.

**This step introduced reform in the economy.**

- The Crisis today in our neighbourhood is an accumulation of all the failures and mistakes committed by the Government.
- Waves of warnings have always been coming on them, still nothing was enough to dissuade them.
- What would have convinced the rulers?
- Well, if only we knew, Eh?
- Until next time...

# WAR

## *The ripened fruit of distrust or the greed of power?*

By Sremana Ghosh, 1st Year



Starting with the formation of janapadas, mahajanapadas, kingdoms and empires, war have been an inevitable part of the history. We have read about the battle of Kalinga, three battles of Panipat, Anglo-Maratha, Anglo-Carnatic and various other wars. These wars can be traced back to greed for territorial domination.

But the destructive wars of World War I, World War II and the present Ukraine crisis has complex structure. Is it due to the greed of power or due to lack of trust?

Let us look back at the probable causes :-

In 1991, Soviet Union got disintegrated. This led to the formation of 15 major independent countries: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

Donbass is a historical, cultural and economic region in south-eastern Ukraine. This region is populated mainly by Russian-ethnic minorities. Separatist leaders supported by Russia seized these regions and declared Donetsk People's Republic and Luhansk People's Republic in 2014.

“ Various pacts and organizations signed by countries to counter Nato ”

**The causes of declaration of independence of Donbass region by Russia :-**

**Nato Formation :**

Nato was signed in April 1949 for deterring Soviet expansionism, forbidding the revival of national militarism in Europe through a strong North American presence, encouraging European political integration.



The history of Nazi troubles and World War II were the main reasons for its creation. Initially, it had 12 founding members.

Various pacts and organizations signed by countries to counter Nato-

### Warsaw pact :

Amidst cold war, Soviet Union signed up socialist republics of Central and Eastern Europe to Warsaw pact. The pact included Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland and Romania.

“

Warsaw Pact was formed to counter NATO and its focus was East Germany

”

It was formed to counter NATO and its focus was East Germany (a Soviet occupied territory of Germany). While Federal Republic of Germany partnered with NATO in 1955. Russia started to worry about the consequences of West Germany at its border. Warsaw pact succeeded in civil uprisings for several decades. Unfortunately, it weakened in 1980 due to presence of economic slowdown in European allies, reducing military cooperation. In 1990 East Germany reunified with West Germany. Soon, Czezhoslovakia, Hungary and Poland withdrew from the pact, leading to

its dissolution in 1991. Although Soviet Union consisted of 15 countries, the withdrawal of the European allies from the pact led to internal conflicts. Internal conflicts are nothing but the conflict of minds of political leaders creating a sense of disbelief.



### CSTO Formation :

In 1992, Russia formed CSTO which included Armenia, Belarus, Kazakhstan, Kyrgyzstan and Tajikistan. Russia maintains a military presence in Transnistria. The three Baltic countries Latvia, Lithuania, Estonia joined NATO in 2004. Ukraine and Georgia were offered NATO membership in 2008. In 2008, Russia sent troops to Georgia to protect two breakaway republics South Ossetia, Abkhazia and annexed Crimean peninsula in 2014, a Black Sea Peninsula from Ukraine.

Thus NATO continuously expanded since 1990 breaking its promise of non expansion policy. The independent Soviet Union countries instead of joining CSTO joined NATO undermining Russia.

Thus Russia's concerns and conflicts can be justified to some extent. On the other hand question arises about the independence of these countries. A country is free to join any organization based on its interests. Thus ,they are not bound to abide by Russia.

## **Why did Ukraine become The Victim?**

### **Importance of Ukraine:**

Ukraine is the most powerful country of Soviet Union after Russia and they shared cultural and linguistic ties for 100 of years.It is the hub of commercial industries and defence manufacturing centres .Ukraine provides Russia access to Black Sea.



Ukraine refused to agree to this point because it affected Ukraine's Sovereignty.On the other hand,Russia accused Ukraine of genocide of Russian ethnic communities in Donbass region. Thus Minsk 2 agreement came to an end.

### **Reasons for Russia's Aggression:**

Ukraine and Russia signed Minsk 1 agreement in 2014 mediated by France and Germany(Normandy Format).They agreed on 12-point cease fire deal, including prisoner exchanges, delivery of humanitarian and withdrawal of heavy weapons. The lack of trust led to the violations of Minsk 1 agreements by both sides.

In 2015, Ukraine, Russia, OSCE signed a 13 point agreement called Minsk 2. Russia demanded interim self government for Donetsk and Luhansk .

“ Russia accused Ukraine of genocide of Russian ethnic communities in Donbass region ”

### **Present Crisis:**

The devastation caused at Kyiv, Kharkiv, Mariupol, Zaphprzzhia nuclear plant at Ukraine is undesirable. The attack at the civilian areas made the civilians worst victims of the war.

It lead to disruption of whole administrative structure in Ukraine.

## **Conclusion-**

Thus the war is nothing but starts with the conflict of minds.Russia cannot alone single handedly be made responsible.The leaders all across the world are unitedly responsible for the present crisis.

Nevertheless, Ukraine invasion by Russia and economic sanctions on Russia will be glorified in the chapters of history.The civilians,prisoners of wars and the soldiers are the major victims as pre-destined.Advancement in technology is leading to greater complexity of minds.War is due to greed for power,selfish interests and lack of trust for nations.

Now the question arises:

*Are the economic sanctions on Russia not building stairs for a greater conflict world wide?*



# MISCEL

# LANEEO

# US

For the things that mean more yet relentlessly unconforming under a particular genre. To create a seperate identity for itself, the vision of which is not classified under a particular linear thought processing sentient human



UNBOUND  
UNRESTRICTED  
UNDISTURBED



**UNCONSTRAINED  
CONSTRAINS**

# Shark Tank

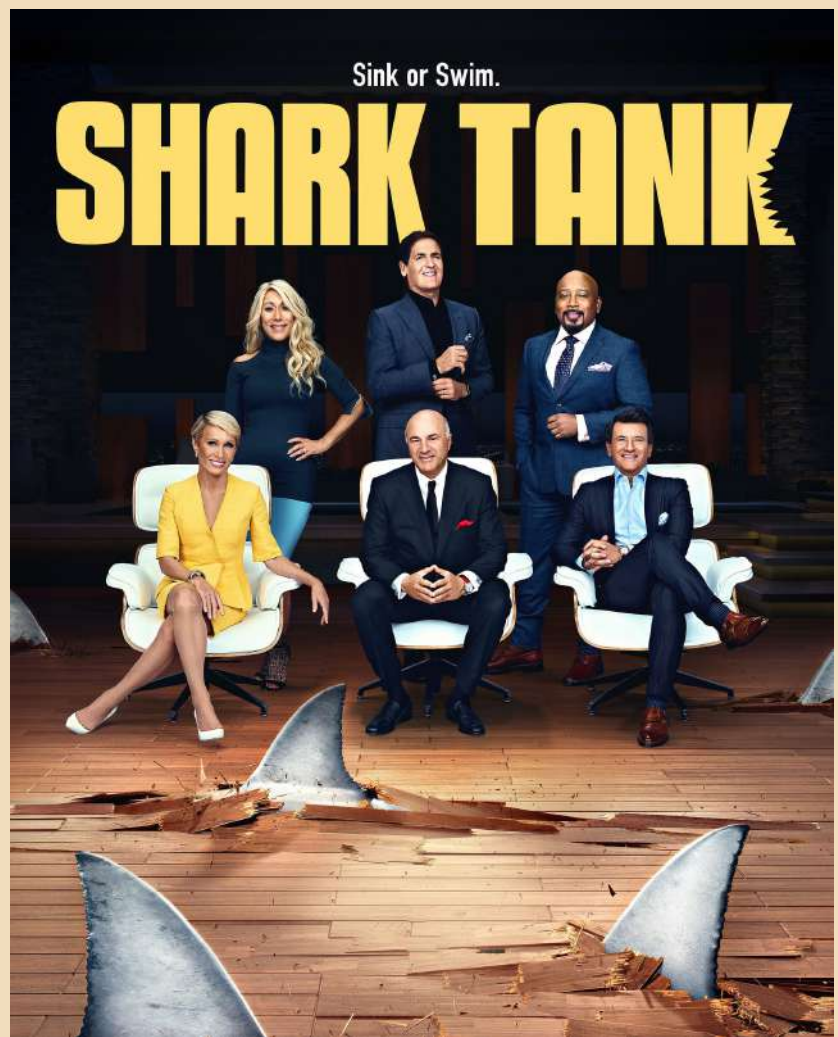
A Boon For Entrepreneurs

Written by Arup Sarkar, ECE 2nd

Shark Tank, a business reality television series, was first premiered in America on August 9, 2009, on ABC. A show dedicated for entrepreneurs. A show where investors (“sharks”) hear different ideas from entrepreneurs who want financial assistance to support and flourish their business ideas in the professional field and impact the living standards.

## **What do Sharks want in return?**

Well, in this world, nothing is for granted for free, so does Shark’s assistance. So, in exchange of that, Shark expects a certain percentage of equity in the business. But before investing in someone’s business model, the Sharks go through previous records of that particular business model.



By records it means:

Sales percentage in the previous years, gross profit, revenue, production cost, share divisions before Sharks involvement, goal of the entrepreneur and so on.

Based on the above records, Sharks forecast valuation of the business model and decides whether to match entrepreneur’s demand or not and based on Sharks offer, the entrepreneur can launch counter offer.

## **How valuation works?**

To give a gist, Sharks calculate the sales and profit which is likely to occur in future based on the provided inputs, market trends and the competitor’s growth and ask the same from the entrepreneur as well.

## **Does entrepreneur get financial assistance only?**

As it is mentioned above, “boon for entrepreneur”, it is rightly so. Apart from financial assistance from Sharks, the entrepreneur takes the advantage of the Sharks’ connection in the market, assistance on technical niche ,production assistance and most importantly their experience. Since Sharks are themselves well-established entrepreneur, they know the real crux of the market, how to expand business and make huge profits.

## **Are the deals made on the TV sets are real?**

Deals made on sets are in fact real. Investors invest their real money in the business ideas but before doing so, proper investigations of papers and other proofs are done. They align it to what the entrepreneur said on the set and if failed, the deal may get cancelled even after made on sets.

All these startup ideas aim for solving real life problems. Ultimately these startups help in the country’s growth. For example, even today we hear the names of Vijay Shekhar Sharma(Founder of Paytm), Byju Raveendran(Founder of Byju’s), Rithesh Agarwal (Founder of OYO) representing India in Global Economic Forum. Many Indian startups with proper guidance and market strategy, have entered in Unicorn Club and impact of Unicorns in the Indian economy is self-explanatory.

*Shark tank India, in its first season only, 62,000 aspirants from all over the country participated and only 198 were successfully able to pitch their ideas in front of the Sharks. 35 episodes in total aired this season with an investment of approx. ₹40 crore on 67 deals.*

# Shark Tank India

After becoming quite popular business reality show abroad, the show found its new destination, INDIA.

20 December, 2021, the show’s first episode aired on Sony Entertainment Television. A number of entrepreneurs participated in the contest and pitched their business models in front of Indian Sharks and made deals. Ideas were different for different purpose. Some impacts society as a whole while others at individual level, some for entertainment purpose while others for some serious purpose.





Shark Tank India has changed the reality show scene in India. It aired at a time when importance is being given more on SIPs rather than Fixed Deposits, where importance given more on investing in cryptocurrencies and IPOs rather than saving money for retirement. It was inevitable from the above lines that the show will be loved by everyone and it lived up to the expectations.

### **JUDGES OF THE SHARK TANK:**

**Ashneer Grover** : *Managing Director and Founder of BharatPe*

**Aman Gupta** : *Co-founder and Chief Marketing Officer of boAt*

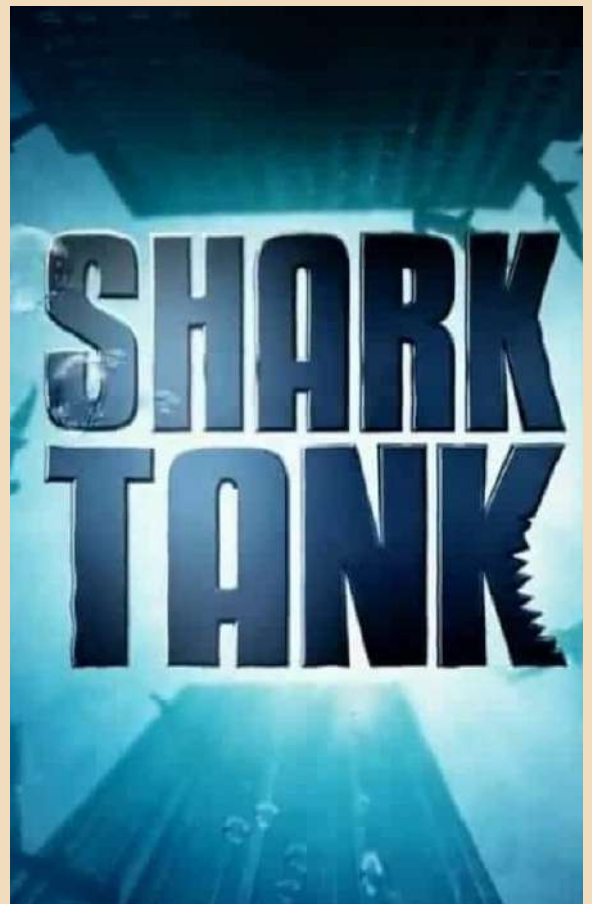
**Anupam Mittal** : *Founder and CEO of Shaadi.com and People Group*

**Ghazal Alagh** : *Co-founder and Chief Mama of MamaEarth*

**Namita Thapar** *Executive Director of Emcure Pharmaceuticals*

**Peyush Bansal** : *Co-founder and CEO of Lenskart*

**Vineeta Singh** : *CEO and co-founder of SUGAR Cosmetics*



**"You're not an entrepreneur; you're a want-repreneur."**

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**Lessons for stock Market Investors:**

**1. Expertise in the sector should be taken seriously**

**Being expert in every sector is not a big deal but how well understanding that sector is the real deal.**

**2. Always go for scalable business**

**Whether looking for a microcap or a Nifty50 stock, think about how scalable the business is and make decision.**

**3. Management Matters**

**In the stock market, you should always be looking on what company's management is doing all the time. A competent and honest management leads to success business.**

**With the concept of Shark Tank, individuals can now have more freedom to share their ideas with others and get funded which ultimately can change their life and others as well (by creating employment opportunities) irrespective of profession, age, gender and financial status. People can now focus on more creative and productive works and improving the standard of living altogether for better tomorrow.**

**It is really an asset for the entrepreneurs.**



# MOVIE REVIEW

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## TOP 5 MOVIES OF PUSHPA'S DIRECTOR

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SOURIDHYA MUKHERJEE ECE 3RD



Movie reviews for the top directives by  
Sukumar Bandreddi

Recently some movies have increased the number of audience coming back to cinema halls and have helped many single screens across India which were about to get closed, to thrive again. One such movie is "Pushpa: The Rise" which released in theatres on 17 December 2021. From Facebook to Instagram, social media has been flooded with the dialogues and clippings of the movie and has created a great buzz among the youngsters. The movie has also grossed Rs.350 crores worldwide against a budget of Rs.200 crores. But the actual fact is that the director of the movie i.e. Sukumar has also made some great movies which are far better than Pushpa. So Ampere ranks the top 5 movies of Sukumar from good to great which are a must watch for all movie lovers.



# OVERVIEW

# 5. REVIEW: NANNAKU PREMATHO



**Starring** NTR Jr., Rakul Preet Singh, Jagapathi Babu, Rajendra Prasad

**Release Date:** 13 January 2016

**Duration:** 168 minutes

**Genre:** Suspense Thriller

Undoubtedly, with one of his best looks in his career, NTR Jr. delivered a terrific performance as Abhiram. He is smart, dashing and extremely intelligent. Veteran actors Jagapathi Babu and Rajendra Prasad once again portrayed their roles extremely well. The mind games between Abhiram and Krishnamurthy will make you awestruck and remind you of the climax of the movie "Sherlock Holmes: A Game of Shadows" when Sherlock and Moriarty face each other. The music of the movie was pretty good with the background music and the song "Don't Stop" deserving a special mention.

# 4. PUSHPA : THE RISE

**Starring** Allu Arjun, Rashmika Mandanna, Fahadh Faasil, Sunil, Rao Ramesh, Ajay

**Release Date:** 17 December 2021

**Duration:** 178 minutes

**Genre:** Action Thriller

The third collaboration between Sukumar, Allu Arjun and music director Devi Sri Prasad(DSP),this movie has broken many records and has cemented Allu Arjun's position as a PAN Indian star. The story, the screenplay, the dialogues, the cinematography, Allu Arjun's performance as Pushpa Raj and lastly the music and the songs of the movie makes this movie a must watch.



**Allu Arjun is the heart and soul of the movie. He lived in the skin of Pushpa Raj. Irrespective of the film's box-office performance, Pushpa will remain one of his best works in terms of acting. Rashmika had very little scope in the movie and she did well in her limited character. She looked okayish in her de-glamorous look.**

# 3. REVIEW: 1: NENOKKADINE



**Starring Mahesh Babu, Kriti Sanon, Kelly Dorje, Nasser, Pradeep Rawat, Naveen Polishetty**

**Release Date: 10 January 2014**

**Duration: 177 minutes**

**Genre: Psychological Action Thriller**

Although the movie was a box office failure, it was later appreciated critically and now the movie has achieved cult status. Honestly this movie had the best story among all the movies of Sukumar he has directed till now. The action choreography composed by Peter Hein is considered one of the best action choreographies composed in Telugu Film Industry. The songs, the cinematography, the VFX are the main highlights of the movie.

# 2. ARYA

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**Starring** Allu Arjun, Anuradha Mehta, Siva Balaji, Subbaraju

**Release Date:** 7 May 2004

**Duration:**151 minutes

**Genre:** Romantic Action

This was the 1st collaboration between Allu Arjun, Sukumar and DSP. Not only did this movie made Allu Arjun a star, it also established Sukumar and DSP as a capable director and a capable music director respectively. The movie is still fresh in today's world and is very popular among the youth audience. In the movie Allu Arjun's performance as psycho lover was really outstanding. Anuradha Mehta and Siva Balaji also performed their roles well. The emotional bgm at the end of the movie will make anyone cry . From "Feel My Love" to "Aa Ante Amalapuram" all songs of this movie were chartbusters and hence the album of this movie is considered to be evergreen.



At First half of the film is full of fun. The second half is good. The last half an hour of the film (especially after the last song) is great. You feel like you are watching a Mani Rathnam film. Thanks to majestic visuals (Rathnevelu - cinematographer), splendid music (Devi Sri Prasad - music director) and marvelous framing (Sukumar - director)! There is a soul in the film and you end up having a thin layer of tears in your eyes while leaving the theater. This film announces the arrival of Sukumar - director - a class apart.

**Starring Ram Charan, Samantha Ruth Prabhu, Aadhi Pinshetty, Jagapathi Babu**

**Release Date: 30 March 2018**

**Duration:179 minutes**

**Genre: Period Action Drama**

One of the best works of Ram Charan till date, the film went on to win the national award for best audiography and many more at different award shows. This is one of the first few Indian movies to be entirely shot using Red Helium 8K cameras for its great dynamic range and for filming sequences under extremely low conditions. Veteran actors Jagapathi Babu and Prakash Raj both gave a spectacular performance. Samantha had been given a lot of screen timing and she shows her top acting skills by portraying the role of Rajalakshmi. The gripping climax of the movie elevates the movie all together. Also the dialect of the movie was rooted and unlike other masala movies the characters did not give a loud performance. The cinematography, the screenplay and the music are the main highlights of the movie.



1.

# RANGASTHALAM

# RECIPE FOR RED VELVET COOKIES



## You will need:

- 1 ½ CUP ALL-PURPOSE FLOUR
- ½ CUP UNSALTED BUTTER
- ¾ CUP SUGAR(GRANULATED)
- 1 LARGE EGG
- 1 ½ TABLESPOON RED FOOD COLOURING
- 1 ½ TABLESPOON VANILLA EXTRACT
- 3 TABLESPOONS COCOA POWDER
- ½ TEASPOON BAKING POWDER
- 2 TABLESPOON WHOLE MILK
- ¾ CUP WHITE CHOCOLATE CHUNKS

## Recipe

1. Whisk the flour, cocoa powder, baking soda and salt in a large bowl and set aside
2. Using a handheld mixture beat the butter until creamy. Beat in the granulated sugar until combined
3. Beat in the egg, milk, vanilla extract as needed
4. Once mixed, add the food colouring and beat until combined and a cookie dough is formed





# Red Velvet Cookie Recipe

## Recipe

5. Add in the white chocolate chips and distribute it well
6. Cover and chill the dough in the refrigerator for an hour
7. Preheat the oven to 350F. Line two baking sheets with parchment paper
8. Scoop 2 tablespoons of dough and roll into a ball. Use palms and fingertips to flatten the ball and give a shape as desired
9. Place 9 such balls in each baking sheet and bake each sheet for 13 minutes
10. Put a few white chocolate chunks into the tops of the warm cookies
11. Cool the cookies before serving

Preparation Time

1 hour 15 minutes

Cooking Time

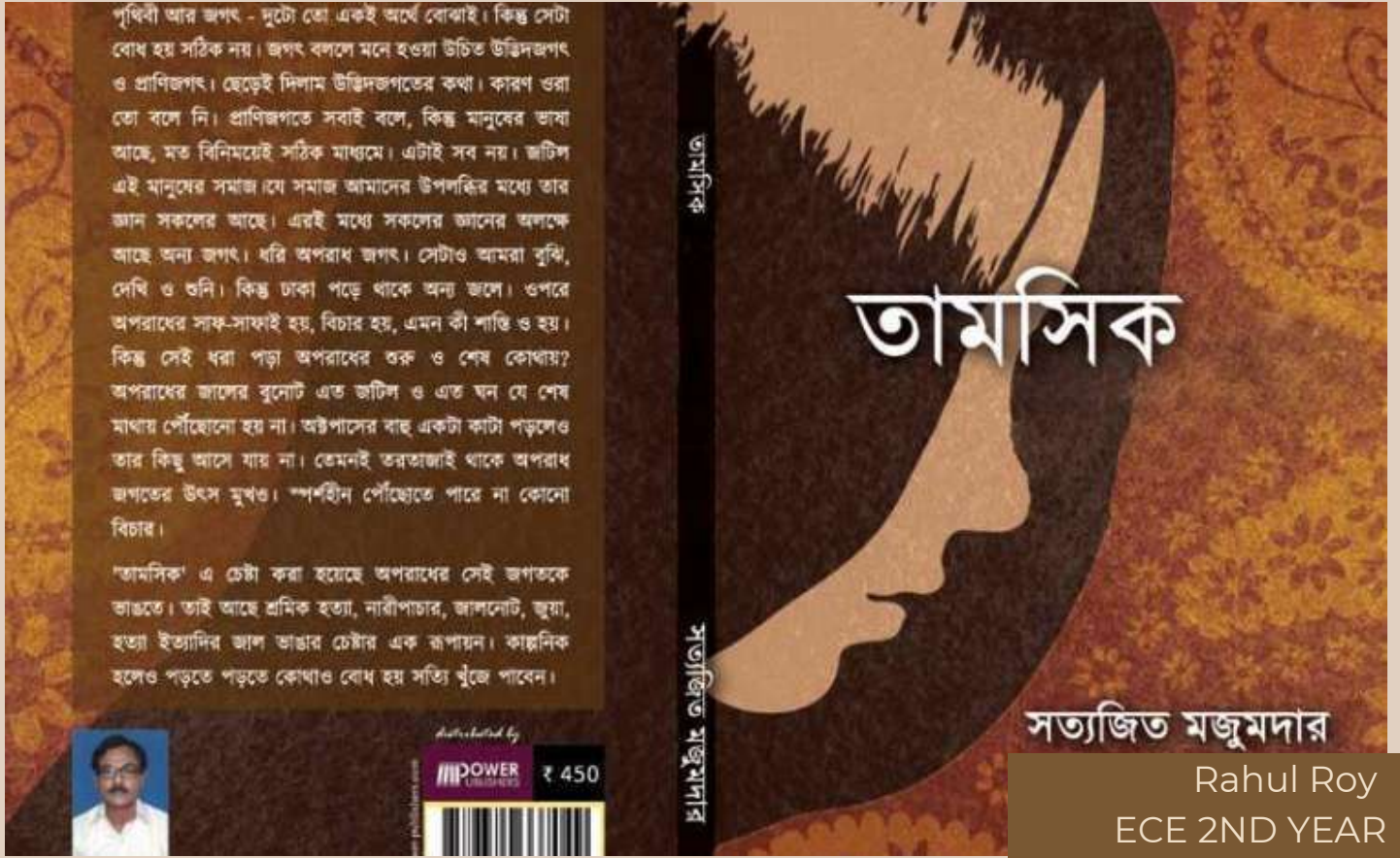
13 minutes

**Sutapa Trivedy**

**ECE, 1st**



# BOOK REVIEW



সত্যজিত মজুমদার

Rahul Roy

ECE 2ND YEAR

SECTION B

Tamosik (in Bengali)

by Satyajit Mazumdar is a multi-layered story, which includes in itself stories about various characters and their varied lives.

This fiction has many twists which may appear to complicate the plot at times but it makes the story beautiful as well.

Viru takes over the central plot and his character and charisma can impress the readers to a great extent. The suspense that is created throughout the story has been remarkably explored by the author. The story begins with a picturesque description of the banks of river Ganga and the author has beautifully painted a picture with words so that the readers can imagine the situation easily. This book deals with multiple issues like murder, women trafficking, family issues, personal emotions and so on. But the most prominent incident is the sudden absence of Basanti, Jatai's sister, who is suspected to

have fallen prey to women trafficking. Viru is appointed by advocate Amitabh Bagchi who handles this case and untangles many complications and knots with the help of other people. The knitting of the plot is so intricate and full of suspense that the readers cannot leave the book without completing it.

Satyajit Mazumdar is a master at describing the ambience and the incidents and these descriptions will definitely impress the readers. The gripping story-line, the interactions between the characters, the inner turmoil, the quest, the plans executed by Viru have turned Tamosik into an interesting and engaging fiction.

The language is lucid and free flowing. Satyajit Mazumdar's Tamosik is a must-read for suspense-thriller lovers and also for those who want to explore the relevant issues in today's world.

# IS THE WORLD UNFAIR?

- BY SWAPNENDU HAZRA, ECE 2ND YEAR



Let me give a general perspective of it... (assuming a lot of generalisation so don't kindly take it personally!).

We studied hard during our school life, so as to appear for one of the entrance exams. Then... (I'm not explaining the process again, you know it already!) All we wish to do in our college days are strategically develop skills and gain knowledge from the professors who help throughout the entire degree. Then we opt to go out looking for jobs to work or to go for higher studies to improve or gain expertise in new fields. Along with it, we participate in societies and clubs to shine on our new hobbies, make a lot of friends & get to know a bunch of new social skills. Ultimately, we believe in the word "Meritocracy", Right?

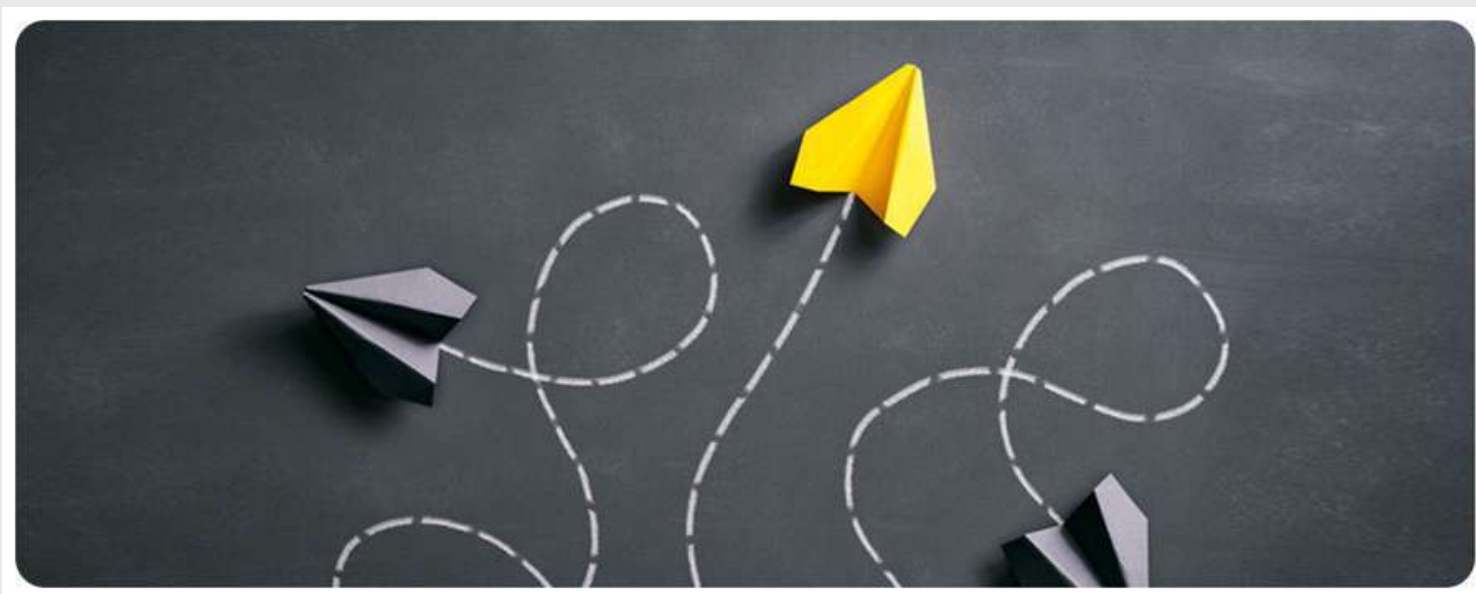
But let me say that getting a chance to shine into the world is a lot harder than you expected. We may already have got a slight taste of it when we might've not secured our expected positions in the entrance exams. We might've realised that there are some things that certain things "are out of our control" or there's luck involved.

Really? What do you think?

Starting from your school days you've always felt that if we just do our assignments, listen to everything that our institutions say, prepare for our exams, and do a bunch of things that everyone is doing, then we can live a better life in the end, right?

But putting in perspective, I believe currently that all we're doing till our college life ends is in a social bubble. But once we reach the end of that period we may realise that the outside world is a lot different.





*Have you ever thought about how often other people succeed to reach their expected visions, while others fail? We're often told to co-relate success with the measures of hard work or put "10,000 hrs of work to reach somewhere". What if we say that they succeeded over their competitors due to their "unfair advantages". And everyone has their own unfair advantages, we just never discover them.*

*I came across this when I watched Ali Abdaal's video about success on YouTube, and subsequently, read the book. Here's a screengrab of it from the video & the book respectively*

*Money*

*Intelligence & Insight*

*Location & Luck*

*Education & Expertise*

*Status*

*Money is the capital you have, or that you can easily raise.*

*Intelligence & Insight includes "book smarts", social & emotional intelligence, as well creativity*

*Location & Luck is all about being in right place at the right time*

*Education & Expertise is both your formal schooling & also your self-learning, which gives you intellectual & technical know-how.*

*Status is your social status, including your network & connections, It's your 'personal brand' (or how you're perceived). It also includes your inner status, i.e. your confidence & self-esteem*

You might've identified some of the above mentioned as your unfair advantages, "you just need to complement your current unfair advantages, to gain about the others"

1. Money: I'm not talking about the wealth you have access to, I'm talking about the wealth can you monetize in your free time (if you are in need!) Also, it's fair play having less money fuels more creative ways to save money and work on new things. Monetize on your skillset that you already have like teaching someone how to code (if you know!)

2. Intelligence & Insight: Some people might have a better IQ than you but having good EQ (Emotional Intelligence) is really more important. Learning how to balance through hard times is really more important nowadays. And knowing how to socially interact with people is really a plus point for you to network with people. Insight is about being observational in the real world. All of the above is really learnable if you give enough time to it.

3. Location & Luck: Being in right place at the right time is hard. But you can understand that living in Delhi & Bangalore is better than Kolkata in terms of employability. Though Kolkata is the 8th largest Metropolitan area in the world, the economic hubs are quite better in Delhi & Bangalore. Luck (it's true about that) but as the say goes "being Serendipitous increases your chances to succeed". Like exposing yourself to more events, taking more actions, putting more stuff out in the world, and meeting new people.

4. Education & Expertise: We already have an advantage as we're specialising in a particular field. But gaining knowledge from outside resources also helps us.

Also, why do wonder IIT Delhi & BITS Pilani has the highest no. of successful start-ups?

Some part of it is credited to the network they get from Alumni of their prestigious universities & people they meet there. Also, getting into prestigious universities is credited to the "signalling" like the 'personal branding' you focus on while making your LinkedIn profile or CV or application.

5. Status: This might sound 'cheesy' but ultimately it focuses on how you network with important people in your education field and experts in industries. Suppose you're studying at one of the top universities in the world, and one of your friends comes from a family of is influential in a certain industry. Then getting help to do a start-up with your "influential friend" is a lot easier than you expected.

It also comes to an inner status like self-confidence, and willingness to take action (which I mostly believe in here) & the personal brand you show to people. All of these unfair advantages are like double-edged swords like having too much money or status can make you demotivated to be not creative, and choosing to live in Delhi can really be expensive. Too much expertise leads to a "fixed mindset" which might result in an inflated sense of egoism. And I also disagree with the talent (as a natural thing!). It's all about getting acquainted at an early age, which leads to the false belief of success as talent.

You just have to learn to know to balance these advantages, according to your own needs.

Ultimately the authors talk (& I do advocate ) about having a "Reality-based Growth Mindset", which is the most important thing before starting to deck the card in your favour. But before all of that you need is a strong vision, the ability to be resourceful, be a lifelong learner & have the grit (or perseverance) to do so.

## THEY QUOTE

"REALITY GROWTH MINDSET IS ABOUT HAVING YOUR FEET ROOTED ON THE GROUNDS, WITH YOUR HEADS IN THE CLOUDS"

So, I do recommend reading this book with a pinch of salt, & this book's message can be used by anyone from students to working professionals to anyone who wants to do something new (entrepreneurs). I still believe education is one of the important advantages you have, you just need to start working on the others. Don't worry I would rate this book still rate this book 4/5 due to its personal biases, as ultimately it's a business book. You can completely disagree with the book only after reading it entirely.

Book Name: *The Unfair Advantage*  
Authors: Ash Ali & Hassan Kubba





## Tantalizing Mellow De Langue

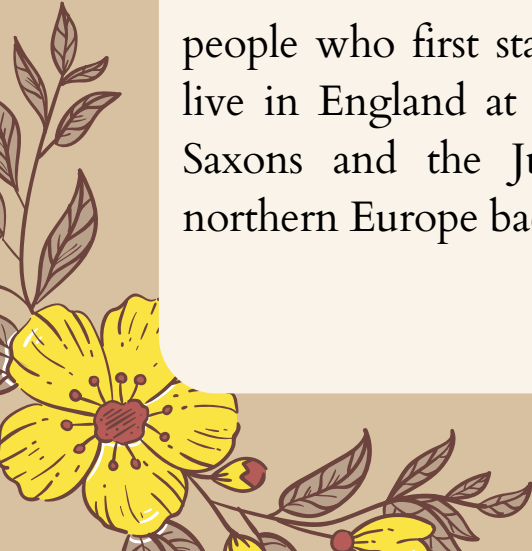



Have you ever wondered, why we tend not to pronounce H of Honest, Heir, Hour. Well, I suppose as these are all loanwords from French, and the French basically never pronounce H when it comes in the beginning position of a word, or at the end, or in various other places.

Well, it can be related down to the fact that English has a lot of direct or derived French words. Estimated, nearly a third of English, though there is apparently some scholarly debate around finer details, is derived from French. The field of Etymology is filled with controversies and complications, but it is safe to say that a lot of English words has come from France, Germany and Netherlands.

As Oxford Dictionary states, many culinary words do indeed come from French. But before that, it comes from Latin, as most of French does, as a romance language. On the other hand, not all of the Romantic influence in English should be attributed to the French. The Romans themselves conquered what we now call England more than 1000 years before French-speaking Normans did.

That is on the other hand. On the mutant third hand, the people who first started speaking what we call the English did not live in England at the time of Roman Britannia. The Anglos, the Saxons and the Jutes were still migrating around central and northern Europe back then.





They and other Germanic people were of course having their own rich cultural exchanges with the Romans, who passed it on to the French, who passed it on to the English, who were themselves a group of Germanic people, allegedly.

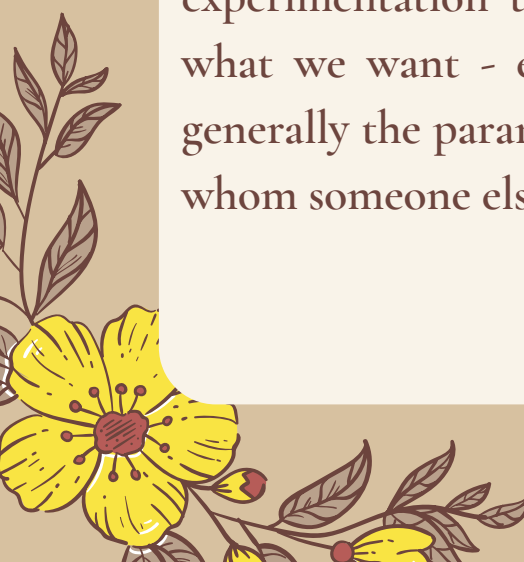
However, we see a common theme here, words sometimes get so mixed up that there can be instances where you could easily build short stories in which 90-95% words do not have any sort of direct relation with *English*, the rest that do have, does not hold any sort of meaningful value to the context of the sentence. Seems hard to believe, init?



Marco Pierre White



Lot of people trace the birth of Global celebrity chef movement to Marco Pierre White. Mr. White, arguably, patient zero for a phenomenon that I believe, is an epidemic upon us. Preceding Marco, chef de cuisine was rarely perceived as an elite métier. Despite having a volatile character, Marco's persistence awarded him 3 Michelin Star. Underlining Marco's culinary expertise, there is a life lesson to be learnt. When you are little, it is an elder's idea of what is desirable. Usually through a lot of hasty experimentation that we figure out personally to get who and what we want - embellishing a person who knows themselves is generally the paramount step towards evolving the type of person whom someone else will want.







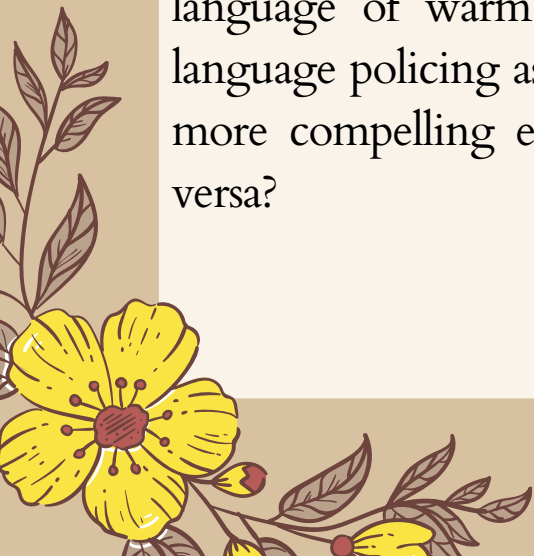
The above paragraph, has around 60% French/French derived words, 25% German & Dutch related words and the rest are of Greek, Italian or some Scandinavian roots. The only words which may have pure English roots are Themselves, Someone and maybe some filler words like 'to', 'a' etc. which does not add any meaningful value to the context of the Biography.


Now, this should also be known to you all, the sentences are constructed in a way which fits my agendum of creating a short Biography that contains slim to none pure English words. But with that being said, it is still flabbergasting regardless of one's agenda.



*Furthermore*, this French Influence is really evident in the cuisine and culinary universe. A classic example of this is in meat terminology. *Pig* is an English word, *Pork* is a French word. *Cow* is English, *Beef* is French. *Sheep* is English, *Mutton* is French. Do you notice a pattern here?

English is the language of cold, filthy fields. French is the language of warm inviting tables. Now see, I get annoyed by language policing as much as the next fellow, but could you ask for more compelling evidence that language affects culture and vice versa?

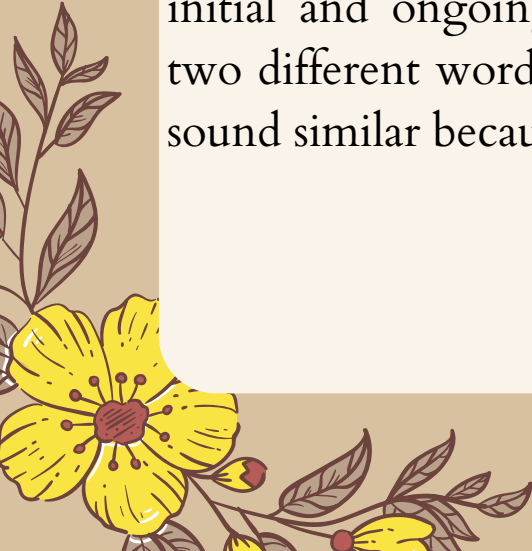





This whole idea of Fancy French is not something we made up last century, this dates back almost literally 1000 years ago. Some French-speaking elites came to town over an English-speaking underclass. English-speakers raised the pig, French gentlemen ate it. And this entire dynamic of 'F in the French stands for Fancy' may have been completely forgotten today had it not been baked into, well, more or less every language in this planet to some extent.

*The words that we choose to use to describe things have the power to perpetuate social attitudes, and this is hardly the most harmful or injurious example of that.*

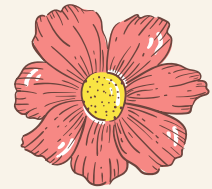
While we are on that topic, let us take the word 'restaurant' for an example. As you might have guessed, 'restaurant' does come from France where they do not pronounce the last letter if there is not any accent on it, but we, English speakers, do pronounce our last 't'. When one language absorbs a word from another, there is usually some degree of initial and ongoing adaptation. Loanwords become *cognates* - two different words in two different languages that look and/or sound similar because they share a recent common ancestor.






*Let us imagine a scenario of a small town café after Sunrise...*

Superiority of ambiance of local cafés is hard to portray. Baristas are ceaselessly prepared to commence your order. From Ground Coffee, Latte Macchiato to Cappuccino, your desire is waiting to be served in a grande mug. Alluring fragrance of coffee gleams the ambiance with a hint of elegance. Rich perfume of coffee aroma tantalizes the near environ. Chic baguettes, croissants to pastries like waffle, macarons; baristas have perfected the perfect morning sup. Charm of a coffee shop awaits for your presence.



well, as much as this sounds like a coffee shop commercial, in the forementioned scenario, it is carefully constructed to be containing words which I can 'proudly?' say does not have any pure English word. French, German and Dutch take the medal of 1st, 2nd, 3rd respectively in the account of derived words in the aforementioned passage. Again, it just reiterates my agendum that it is not difficult to create something of this sort.





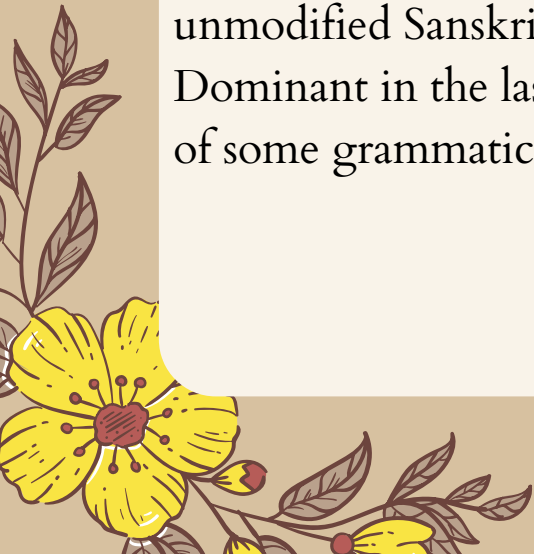
## What about Bengali?




Enough about *English*, *French* and languages derived from *Latin*,  
What really takes the cake, in my opinion is *Bengali*.

Deriving from *Magahi Prakrit* (a spoken language) through *Magahi Apabhramsha* (its written counterpart), present day Bengali started its journey from 10 th century A.D. which is strongly suggested by Suniti Kumar Chatterji. Although Bengali is an Indo-European language, it has been influenced by other language like *Arabic*, *Persian*, *Portuguese*, *French* all of which contributed to *Bengali* vocabulary and provided the language with some structural forms.

In the 1960s and '70s, Chatterji examined dictionaries from the early 20th century and attributed slightly more than half of the Bengali vocabulary to native words (i.e., naturally modified *Sanskrit* words, corrupted forms of *Sanskrit* words, and loanwords from non-Indo-European languages), about 45 percent to unmodified *Sanskrit* words, and the remainder to foreign words. Dominant in the last group was *Persian*, which was also the source of some grammatical forms.





More recent evidences suggest that the use of native and foreign words has been increasing, mainly because of the preference of Bengali speakers for the colloquial style.

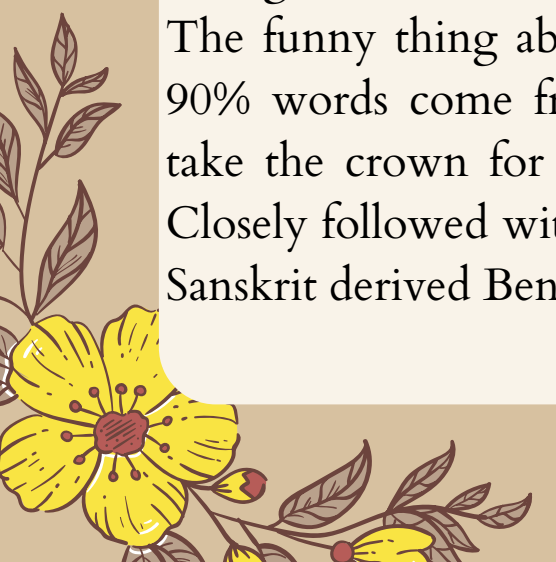
There is a dictionary by Pandit Gobinlal Bonerjee Kaviratna which, 350 pages of it consists words which does not have any co-relation with Bengali or Sanskrit. For example, in Bengali, for basic everyday objects we are more accustomed with English words rather than it's Bengali counterpart.


### *A Train of Thought,*

আস্বে আস্বে সুড়ঙ্গ-রাস্তা দিয়ে, মেট্রোরেলের পিছনে এক কামরা তে উঠে দেখি আবারও দেরী। সর্বদা দেরী করে আপিস গেলে সাহেব একদম কোরমা করে রেখে দেবেন। আলখাল্লা জামা-প্যান্ট ইস্তিরি হয়নি, আলমারি লক করিনি, সব জানলা দরজা বন্ধ কিনা নেহাৎ শক, উপরিউপর চশমাও গায়েব। আহম্মুখি অছিল!

আবহাওয়া একদম হুমিদ। যাই, ব্যাংকের নাগাদ ওই রেস্টোরাঁর গরমাগরম মটন বিরিয়ানী চেখে আসি, বাবুর্চি খাসা কাজু-কিশমিশ সমেত রাধে। গরিবী সর্বদাই, পকেট নেহাৎ খালি হবে কিন্তু একসা উষ্কখুষ্ক জীবনে নয় আলবৎ চকমকি আসুক।

Being a one-tracked person, I could really see myself taking the metro and having this train of thought on my head. The funny thing about this forementioned 'train of thought' is, 90% words come from Arabic and Persian root, which in-fact take the crown for the most borrowed word stock in Bengali. Closely followed with English, Portuguese and French. The only Sanskrit derived Bengali word I can see here is 'রাধে'.





Going back to English, most European languages indeed come from Latin, so you can possibly make an argument. But Persian, Arabic, Portuguese, French do not hold any sort of linguistic relation with Bengali. Quite staggering to think you can have a real life train of thought with slim to none pure Bengali word in it.

Look, I am not here to judge what is right or wrong for any particular language. I am merely just one who likes experimenting with words. But I do believe this globalization of language is beneficial for long term. I mean, you do not want what is happening to Icelandic with your mother-tongue, right? All I know, I prefer saying 'ওডিকোলন' over 'scent' any day of the week, it just sounds better.

ধন্যবাদ, *Anurag Das.*



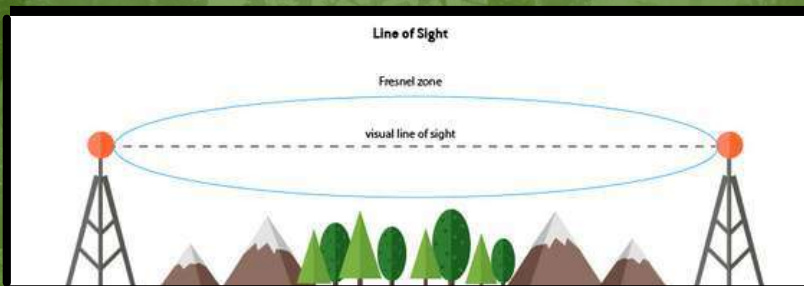


# EDU-TALK

*A sneak peek into the brilliant minds of our professors*

## A Challenging Communication Trial in the Jungles

Our company had come to know about a big business prospect with the CRPF. The profile required was rather demanding- reliable communication had to be set up across the dense jungles of Lohardaga forests. To add to the challenge, the terrain there is hilly and uneven. Now, wireless communication, we are used to like the police like networks or our cellular systems are termed as Line-of-Sight (LOS) communication. The name originates from the requirement that the transmitting antenna and the receiver antenna should be visible to each other. As you can realize, this is not possible on a terrain which one faces



in Lohardaga area. This was a challenge definitely and no company was successful in their trials and this prompted us to convert the challenge into

an opportunity using our expertise and knowledge. We were pretty confident that using High Frequency (HF) communication and antennae floated with gas balloons, the terrain and forest issues will be solved. A team of three engineers- myself and two other senior engineers formed the team and we reached Ranchi one fine morning. We were excited about the trial and the visit to a new place. The real story started unfolding, when we alighted from the train. We were quickly surrounded by a sizeable team of CRPF personnel, all uniformed and armed. Our luggage, which carried the communication equipment and accessories, were taken by the CRPF team. The commandant explained that the danger lies in the fact that the banned groups have very strong links with common people and the villagers. They already know about the trial to be undertaken by us and they will try to snatch the communication equipments. The three of us started our journey towards Lohardaga in the CRPF jeep and we were escorted by trucks carrying armed police guards.



The journey was a lovely one in the month of January. We forgot all the worries and three of us immersed ourselves in the nature and its beauty. We reached the barrack in about three hours and we had breakfast and tea with the seniors of the CRPF barrack. We were shocked to know that the SP of that district had been brutally murdered just one month back. We were also briefed about the schedule of the



trial. It will start with high level discussion in the SP's office next morning. They took us to the "Best" hotel in the locality/town. We were, I must admit, a bit disappointed with the "Best" hotel condition and amenities. We were given the best

rooms of the hotel. Still, the windows had a few glass panes missing and the problem of January chilly wind entering the rooms was tried to be solved by some makeshift curtains. Four armed guards were posted permanently at the hotel- two at the gate and two in the lobby. We were feeling excited and thrilled as we were treated like important persons. The dinner was very frugal and we went to sleep after a tiring day. The chilly wind was having free pass into the rooms through the flying curtains and we had to sleep with everything on-shirts, woolens, socks.

Early next morning we became ready to meet the SP in his office. A picture of the murdered SP was on the wall and we felt so sad when we saw the

photo of an energetic, young police officer, who had lost his life in the line of duty. We worked out an elaborate plan to complete the trial in 4 days. It was decided that we will have to start the exercise every day by 8AM and we have to return to the barrack by 3PM.



It was of utmost importance to avoid any ambush in the dark. We went to the first base camp inside the jungle next day by 7.30AM. Tents had been put up at the site. The three of us were accompanied by 12 armed guards. We completed the interfacing of the HF radios with antenna and other accessories. The antenna at the base camp was hoisted to about 40 feet with the help of bamboo masts.

Then two of us went to different locations within the jungle and the locations were selected by the CRPF staff because they knew about the sites, from where the communication was most difficult. We first tried the sets with telescopic antenna of about 30 feet maximum. It was not reliable but when we hoisted the antenna with gas balloons to clear the trees, the improvement was remarkable. So, we finally solved the long-standing problem of the CRPF and other para-military forces in that



Pic 1 shows the balloon at a height of approximately 100 feet. This technique is used for end-fed long wire antennas. It is a single wire connection. The antenna wire is connected to the marked port of the HF transceiver set. Pic 2 shows the long wire antenna, connected to the designated port.

disturbed area. We stayed for a few more days to check the consistency of the communication quality. In the meanwhile, we proposed to the commandant to allow us to visit the villages of the tribals but he would not allow us. Finally, he agreed to our proposal but 4 armed guards escorted us all the time. Their viewpoint was that all the villagers are sympathizers with the insurgents. Still, we felt so sad to see the plight of the villagers—they were so poor and so deprived of the basic amenities of a modern society. So, with a mixed feeling— a feeling growing out of overcoming a difficult challenge but with a tinge of sorrow for the poor villagers— we started our return journey. We again were escorted to the train by the CRPF.

We remember quite a few moments out of those days even now, after about 22 years.

— Prof. Prabir Banerjee  
ECE Department



## খোলা চোখে

আকার মতো যদি একটা ছবি আঁকতে পারি।  
শূন্য থেকে শুরু করে দিচ্ছি পাহাড় পাড়ি।  
দেখছি যত রুধির রঙা ফুলের কলিখানি  
দূর দিগন্ত দিচ্ছে আমায় রঙিন হাতছানি।

ছুটতে ছুটতে হারিয়ে গেছি সবুজ বনের মাঝে  
বিঁবিঁর ডাকে সুর তুলেছে রাঙা আলোর সাঁঝে  
নীলকণ্ঠ আর টিটির ডাক ভরছে আমার প্রাণ  
মেহুলির ছন্দ আনে নতুন লয়ের গান।

হঠাৎ করে আলোর পরী দিচ্ছে আমায় ডাক।  
কি জানি কি অমোঘ মায়ায় হাতের ওপর হাত,  
আজও দেখি রামধনু রং দেড় তলার ওই ঘরে  
চারটি মেয়ে পুতুল খেলায় ঘরকন্যা করে।

হারায় যদি হারিয়ে যাক, মন আজ আনমনা  
স্বপ্নে আজ বিভোর আমি, নদীর নাম অঞ্জনা  
সহজপাঠে মন রাঙিয়ে দিচ্ছি ডুব এত বার  
ছেলেবেলার জীবনটা ছিল সহজ কারবার।

মনের অনুরণন দেখে ডাকছি যেন কারে  
লাল মাটির ওই ঘোড়ার পিঠে সিঁধু নদীর পাড়ে।  
আকাশ মাটি পাহাড় বনে নবীন বাহার কত  
তুমিই বল এসব ফেলে, ঘরে ফেরা কি সহজ অত?

যাওয়ার আগে যেতে হবে রাজার মত করে  
নিয়ম নেই কোনো নিয়ম মেনে চলার তোড়ে।  
রাঙতা মোড়া নদীর জলে দাঁড় টানছি জোরে  
হাজার খানেক আকাশ থাকুক আমার দুহাত ভরে।

— Prof. শ্রীপর্ণা ভট্টাচার্য্য (মিত্র)  
ECE Department



# DIGITAL TWIN?

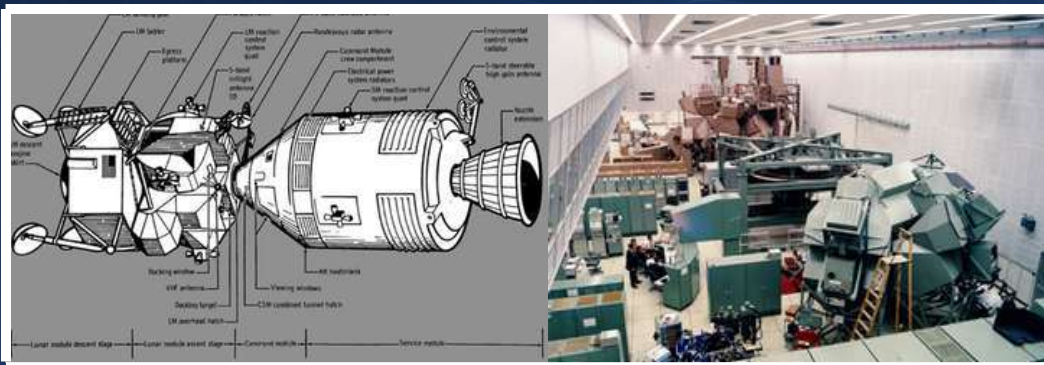


In a world where everything is increasingly inclining to become digital and virtual, the Metaverse is the buzzword du jour. Some folks call it virtual worlds, some call it some experiential outcome of Web3 and some believe that it is going to be a blending of virtual and physical worlds into a cyber-physical mashup. Hence it requires a digitalized copy of the real world as an entry point to provide fully connected, immersive, and engaging 3D experiences.

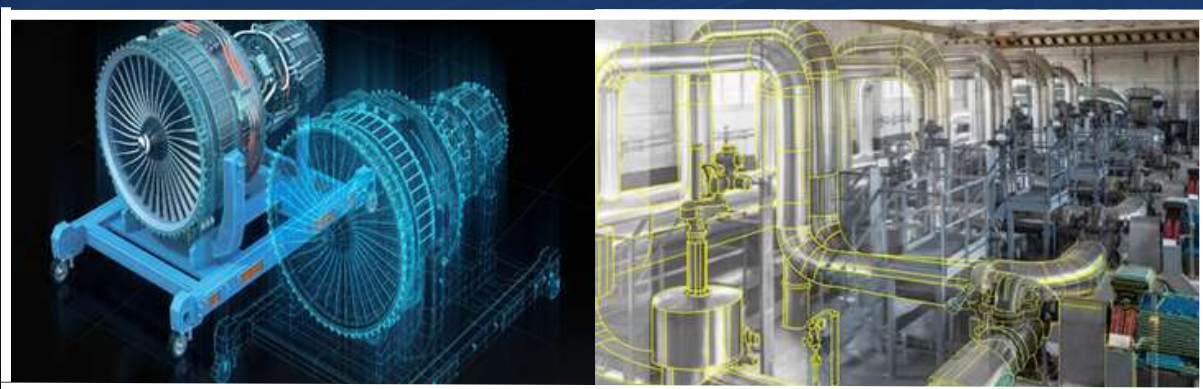
By deploying DIGITAL TWINS, an organization can introduce dimensionally precise real-life spaces into the Metaverse virtual mirror world. A digital twin is a virtual representation of an object or system that spans its lifecycle, is updated from real-time data, and uses simulation, machine learning and reasoning to help decision-making. It is a virtual model designed to accurately reflect a physical object. However, a digital twin is not a digital avatar, which is more like a character you might play in a fantasy MMORPG (Massively Multiplayer Online Role-Playing Game).



The idea of digital twin technology was first voiced in 1991, with the publication of *Mirror Worlds*, by David Gelernter. However, Dr. Michael Grieves is credited with first applying the concept of digital twins to manufacturing in 2002 and formally announcing the digital twin software concept. Eventually, NASA's John Vickers introduced a new term — “Digital Twin” — in 2010. However, the core idea of using a digital twin was conceptualized by NASA in the 1960s, when each voyaging spacecraft was exactly replicated in an earthbound version that was used for study and simulation purposes by NASA personnel serving on flight crews.



1. Digital Version of Spacecraft 2. Apollo Simulators at Mission Control in Houston. The Lunar Module Simulator is in the foreground in green, the Command Module Simulator is at the rear of the photo in brown



Power Generation & Industrial Automation through Digital Twin Concept

There are two approaches to defining the scope of digital twins. One approach defines the digital twin as an umbrella concept that covers data ingestion, data management, modelling, and simulation. The second approach focuses on its function's core, serving as a mirror for a unique physical object and its digital reflection.



Connecting the Digital Twin: From Idea through Production

There are various types of digital twins such as Component twins/Parts twins, Asset twins, System or Unit twins, and Process twins depending on the level of product magnification. The biggest difference between these twins is the area of application. Digital Twins are already extensively used in many fields like power-generation equipment, structure and their systems, Manufacturing operations, Healthcare services and vehicle automation.

—— Prof. Sabyasachi Chatterjee  
ECE Department



## দাওয়াইপানির দাওয়াত -এ

কুইন অফ হিলস' দার্জিলিং থেকে মাত্র ২২ কিমি দূরে, শান্তি ও নিস্তর্রতা দিয়ে গড়া এক ছোট্ট অপরিচিত গ্রাম দাওয়াইপানি - এবারের আমার গন্তব্য। সারাদিন পাখির আনাগোনা, চোখের সামনে দিগন্ত জোড়া কাঞ্চনজঙ্ঘা, এক দিকে দার্জিলিং আর একদিকে সিকিমের নামচি, দূরের চা বাগান ও অবশ্যই হোমস্টের সুস্বাদু রান্না - দু-এক কথায় এটাই দাওয়াইপানির পরিচয়। এক শান্তির জায়গা - যেখানে সহজেই নিজের সাথে একলা হওয়া যায়। কাব্যিকতা ছেড়ে নেমে আসি বাস্তবের রাস্তায়। এন জেপি থেকে দাওয়াইপানির দূরত্ব ৮০ কিমি -সময় লাগে ৪ ঘণ্টা মত। রোহিণী, সুকনা ছাড়িয়ে টোল রোড ধরে কার্শিয়াংকে পাশে রেখে, টয় ট্রেনের ছোট্ট লাইনকে সঙ্গে নিয়ে, আমাদের বাহন এগিয়ে চলল ঘুমের ১ কিমি আগের জোড়-বাংলোর দিকে। জোড়-বাংলা থেকে তাকদার দিকে তিন-মাইল মোড় ছাড়িয়ে একটু গেলেই একটা রাস্তা উঠে যাচ্ছে দাওয়াইপানির উদ্দেশ্যে। এই গ্রামের নামকরণের ইতিহাসটিও বেশ আকর্ষণীয়। এই জায়গাটি তখন ব্রিটিশদের এস্টেট। এক ইংরেজ সাহেব এলেন এর তদারকিতে। তিনি বেশ কয়েক মাস যাবদ পায়ে একটা ক্ষত নিয়ে ভুগছিলেন। এরজন্য তিনি জুতো না পড়ে, চটি পড়েই অফিস যেতেন। অফিসের পথে রোজ তাকে একটা ঝর্না পেরোতে হত। কিছু দিনের মধ্যেই উনি লক্ষ্য করলেন ওনার পায়ের এতদিনের ক্ষতটি বেশ শুকিয়ে গেছে। উৎসাহিত সাহেব পরীক্ষা করে দেখলেন যে ঐ ঝর্নার জলে প্রচুর পরিমাণে মিনারেল আছে যা তার পায়ের ক্ষতটিকে সারিয়ে তুলেছে। তারপর থেকেই এই গ্রামটি দাওয়াই - পানি নামে পরিচিত। ইতিহাস ছেড়ে এবার ভূগোলে ফিরে আসি। এখানে আমাদের আস্তানা বীরেন (রাই) জীর হোমস্টে।



পরিষ্কার পরিছন্ন, সাজানো গোছানো বেসিক আধুনিক সুবিধায়ুক্ত গ্রামের বাড়ি। ওনার উঠোনটাই যেন কাঞ্চনজঙ্ঘা দেখার ব্যালকনি। কাঞ্চনজঙ্ঘার সাথে লাঞ্চ করতে করতে একটু দেরিই হয়ে গেছিল। হোমস্টের ঠিক পিছন থেকেই সেঞ্চেল ফরেস্টের প্রবেশপথ। হাঁটা লাগালাম সেই জঙ্গলের রাস্তা ধরে। দুধারে উঁচু পাইন বনের মাঝ দিয়ে আসা সূর্য- রশ্মি, পাখির মিষ্টি কোলাহল, একেবেকে চলা রাস্তা আর - 'ম্যায় অর মেরি তানহাই' -সে এক অদ্ভুত সুন্দর অভিজ্ঞতা। সম্বিত ফিরল হঠাৎ বেড়ে যাওয়া পাখির ডাক ও পড়ন্ত সূর্যের আলো দেখে।



না, এবার ফিরতে হবে। ফেরার সময় আমাকে দ্রুত ক্রস করে গেলো একদল স্কুল পড়ুয়া – y তারা এই পথে রোজ ৫ কিমি হেটে ‘তিন-মাইলে’ স্কুল যায়!! হোমসেট-তে যখন পৌছালাম – তখন সূর্যি গেছে পাটে। সেই মায়াবী আলোতে, বাদিকে তাকাতেই দেখলাম, দার্জিলিং শহরের আলোগুলো যেন দেওয়ালীর প্রদীপের মত একটা একটা করে জ্বলে উঠছে। সে এক নৈসর্গিক দৃশ্য। ঘরে গিয়ে একটু ফ্রেশ হয়ে, গরম জামা চাপিয়ে নামতে না নামতেই, ডাক পড়ল ‘ইভিনিং স্নাক্স’ এর। ধুমায়িত চা –পাকোড়ার স্বাদ, রাই পরিবারের এক সদস্যের



স্থানীয় ভাষায় গানে, অনেকগুন বেড়ে গেল। প্রায় ঘণ্টা দেড়েক আড্ডা চলল ঐ ডাইনিং রুমে বসেই। ডাইনিং রুম থেকে বেরিয়ে, ইচ্ছা হল একবার উঠোনটার দিকে চু মেরে আসতে। অন্ধকার আরও গাঢ় হয়েছে আর দার্জিলিং শহরের সাথে সাথে ঝলমল করছে দূরের নামচি। যেন আকাশের সব তারা গুলো আজ নেমে এসেছে মাটিতে আর চারিদিক সাজিয়ে তুলেছে লক্ষ তারার সলমা জরির সাজে। আড্ডার কোলাহল থামিয়ে খানিকক্ষণের জন্য সবাই চুপ করে শুধু অনুভব করছিলাম নৈশব্দের সৌন্দর্য!!

ঠাণ্ডাটা বেশ বেড়েছে মনে হল। রাতে গরম গরম রুটি আর দেশি মুরগির ঝোল খেয়ে –টামি খুশ। একটু তাড়াতাড়িই পাড়ি দিলাম ঘুমের দেশে। পরের দিন অন্ধকার থাকতে থাকতেই উঠে পড়লাম ‘সান রাইজ’ দেখার জন্য। ঘরের সামনের ব্যালকনি থেকেই দেখা যেত, কিন্তু সামনের উঠোনটার লোভ সামলাতে পারলাম না। পরতে পরতে দৃশ্যমান হচ্ছে কাঞ্চনজঙ্ঘার এক একটি চূড়া, আর তার সঙ্গে রঙের কারসাজি। এর মধ্যেই চলে এল চা। ধুমায়িত চা আর আবীর রাঙা কাঞ্চনজঙ্ঘা - সে এক বিরল কব্বিনেসান। চাইলে এখান থেকে গাড়ি করে ঘুরে নেওয়া যায় – রঙ্গারুন



টি এস্টেট, লামাহাটা, তিনচুলে, তাকদা, মংপু, সিটং, দার্জিলিং – আরও অনেক জনপ্রিয় জায়গা। তবে পায়ে হেটে, গ্রামটাকে না দেখলে কিন্তু দশ-আনাই ঠকে যেতে হবে। এই নির্জন পরিবেশে এক একটা মোড়ে অপেক্ষা করে আছে একেকটি নতুন রূপ, নতুন সৌন্দর্য। এই ভাবে সেই দিনটাও কাটিয়ে ফেললাম দাওয়াইপানিতে। দু রাত্রি তিন দিনের এই সফরের অক্সিজেন হয়ত আরও কয়েক মাস তরতাজা রাখবে এই

ফেরারী মনটাকে ...তারপর আবার নতুন গন্তব্য।

— Prof. সৌনক দাশগুপ্ত  
ECE Department





# HUMANS

## THE TRASH MAKING MACHINES

**T**he Earth is a beautiful place to live in and undoubtedly human beings are the most wonderful creation of this green planet. Ever since humans started to walk the Earth, their intelligence improved many folds. There will always be controversies about what comprises of the human intelligence but the world psychologists will unanimously come to agreement that the ability to think can essentially be the main definition of intelligence. If we ponder for a while, to closely understand the outcomes of this supreme intelligence possessed by so many present on the Earth, it will surely make us anxious about the future of this life-sustaining planet. Human inventions and creations have changed the world for both good and bad and also by ways never to be reverted back. Life has progressed with the benefits and comforts of such inventions, but habitually we have never realized how much we have taken for granted until we have lost it. It is unfathomable how much pollution mankind has produced through their intelligence along-side the real positive outcomes of human innovations. Scientists around the globe are vocal about pollution prevention approaches in land, air and water. It is unfathomable how much pollution mankind has produced through their intelligence along-side the real positive outcomes of human innovations. Scientists around the globe are vocal about pollution prevention approaches in land, air and water. What many are unaware of or possibly do not want to strike uncomfortable conversation, the fact remains that mammoth quantity of “space junk” are being regularly created by humans in the name of technological advancements. It is as if, the Mother Nature has whispered in our ears that She has given us the absolute liberty to create nuisance in space and other planets too, once we are done with the complete destruction of our own planet.

Shockingly 27,000 pieces of orbital debris which amounts to 10,000 tons are tracked by the Department Of Defense's Global Space Surveillance Network(SSN) sensors. There are many more, that are too small to be tracked, but large enough to threaten human spaceflight and robotic missions, since both debris and spacecraft are travelling at extremely high speeds. Space debris, or space junk consists of discarded launched vehicles, parts of a spacecraft that floats around in space at hundreds of miles above the Earth. Debris can also be caused by an explosion in space when mission tests are conducted by destroying dead satellites in orbits. The concern here is that space missions will advance and with it the number of debris will rise too, with little effort of their removal. So, what have we got to do with this entire crisis? We are comfortable on our couches with a big screen in front receiving signals from the thousands of satellites in orbit and more coming up to entertain us. Countries can wage war for trivial reasons to uphold self prestige and pollute environment. Scientists can quench their endless thirst to know about the universe and its origin by sending robotic missions and spacecrafts. We have made new inventions and with our irresponsibility and unplanned ventures have dragged the world to the verge of collapse. Now that we have somewhat realized and the devil's knell warns us of a nearing end, we are sloth bears in gearing up for some healing measures. Instead we have come up with an easy alternative and again taking the help of our intelligence we have started finding new places in space and arrange for suitable means to create a new habitat for human beings just in case the Earth does not survive or no longer has any room left apart from solely garbage. We are now eying to pounce on other planets and in the long run considering to tear it down too like we have done to the Earth, assuming this to be our Fundamental Right! If this is why we are gifted with intelligence, then I wish that this privilege conferred on us be pilfered.

— **Prof. Amrita Banerjee**  
**ECE Department**

# RECONNECTING



Home

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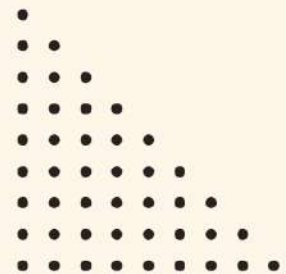
where



the

heart

lies






**Sankalpa  
Mukherjee**  
2021 Passout

How's life after your UG?

Life is never going to be the same...  
And the faster you accept it, the  
better for you, and don't take too  
much pressure in your work,  
everything will fall in place  
eventually, you just need to clear  
your mind and focus on your  
work.




How was the transition  
and how did it affect you?

I'm currently working in TCS, actually the transition hasn't been according to what I would have imagined, but eventually you'll adjust yourself to the new lifestyle, to your new work, and of course, your new environment. Like I've said, give everything some time.

How did covid affect your 'life  
during and after college'?

Actually with everything online, the biggest challenge for me was to adjust to the whole WFH mode or what you call the online mode. Even being a modern kid, you'll face challenges with this whole online mode, but eventually, you'll learn how to do everything.



How would you like to guide us on the very path that you have undertaken?

Believe me, I'm always there for my precious juniors, and the one and only suggestion i would like to give is, " always work on yourself, always improve yourself, don't compare yourself to another person, always compare yourself to the previous version of you, and when you find out , that you're a far better version of yourself that yesterday, believe me, you're winning in life " .

Finally, a short sweet note for us and yourself on life during UG and after that will be much appreciated.

Really glad that I had such precious juniors, and I'll always be there for you guys.

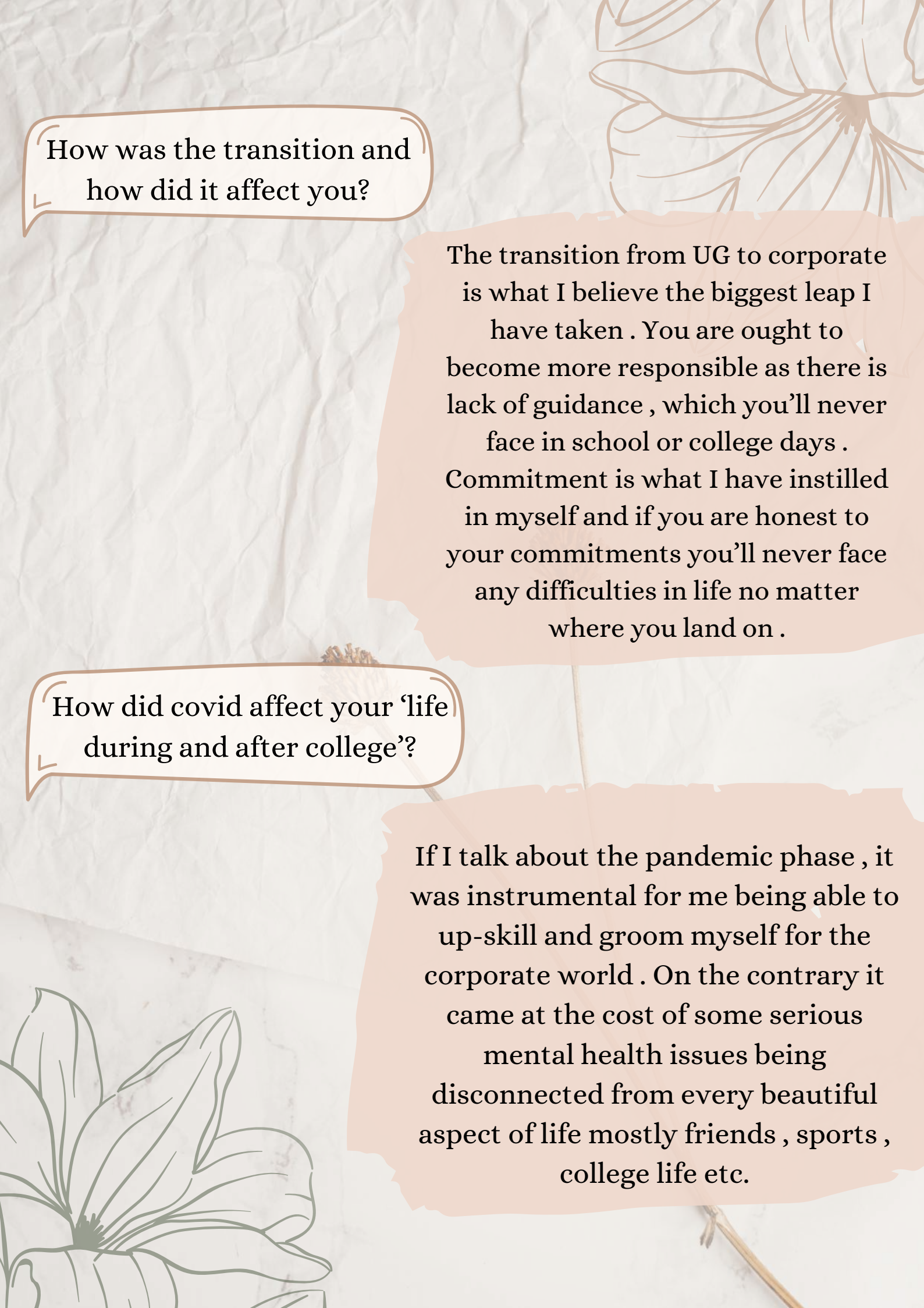


# Sayak Banerjee

*2021 Passout*

How's life after your UG?

Life after UG is the final testing ground for whatever you've been preparing from the very first day of your life . This can be fun and challenging at the same time where you have the independence to take your own decisions but if things go wrong you are to blame yourself .  
Patience, perseverance and hard-work comes handy during this phase .



How was the transition and how did it affect you?

The transition from UG to corporate is what I believe the biggest leap I have taken . You are ought to become more responsible as there is lack of guidance , which you'll never face in school or college days . Commitment is what I have instilled in myself and if you are honest to your commitments you'll never face any difficulties in life no matter where you land on .

How did covid affect your 'life during and after college'?

If I talk about the pandemic phase , it was instrumental for me being able to up-skill and groom myself for the corporate world . On the contrary it came at the cost of some serious mental health issues being disconnected from every beautiful aspect of life mostly friends , sports , college life etc.





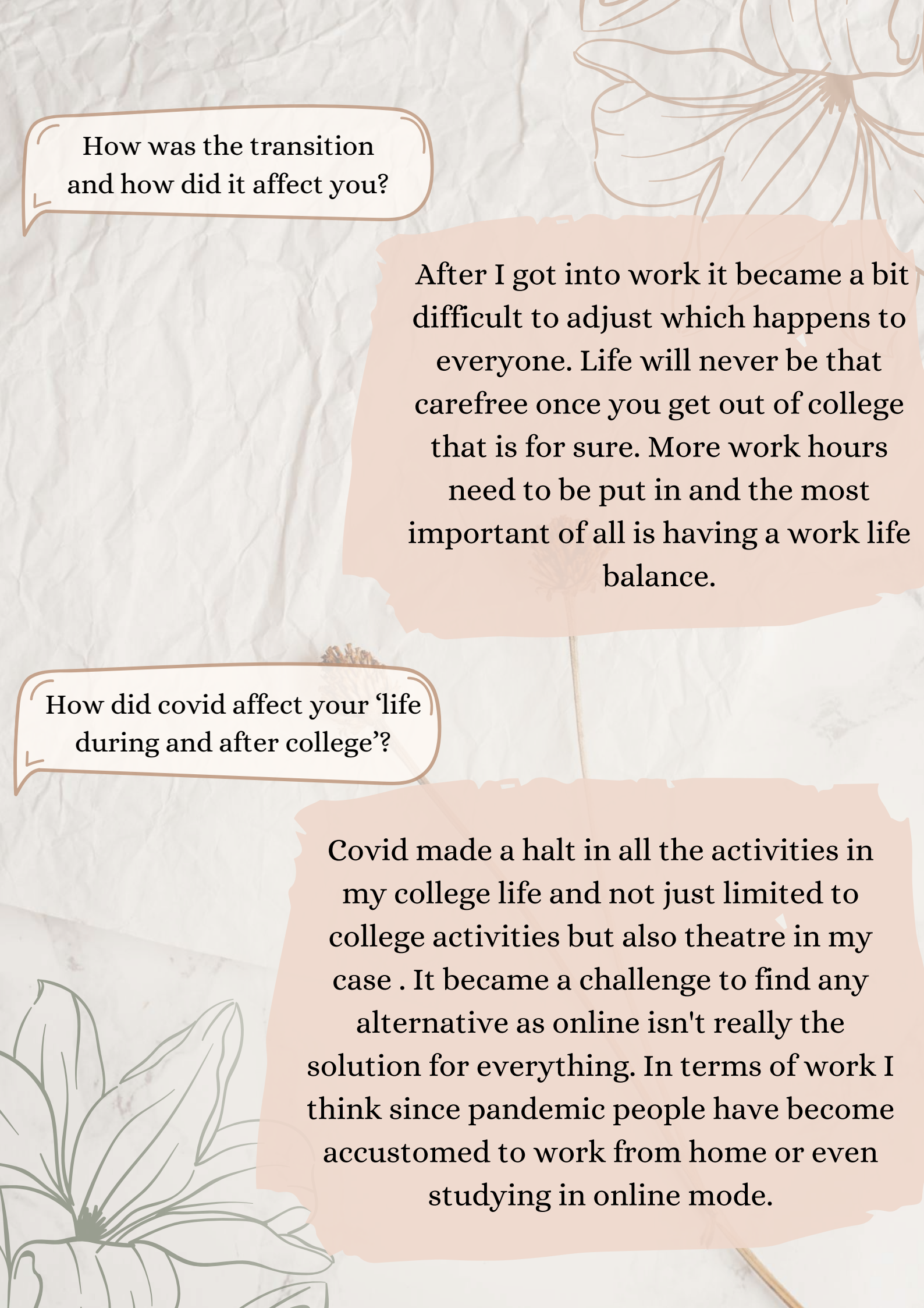
**Somopriya Seth**

*2021 Passout*



How's life after your UG?

Life after college is bound to become a bit hectic as the transition is of quite a big magnitude.



How was the transition  
and how did it affect you?

After I got into work it became a bit difficult to adjust which happens to everyone. Life will never be that carefree once you get out of college that is for sure. More work hours need to be put in and the most important of all is having a work life balance.

How did covid affect your 'life  
during and after college'?

Covid made a halt in all the activities in my college life and not just limited to college activities but also theatre in my case . It became a challenge to find any alternative as online isn't really the solution for everything. In terms of work I think since pandemic people have become accustomed to work from home or even studying in online mode.



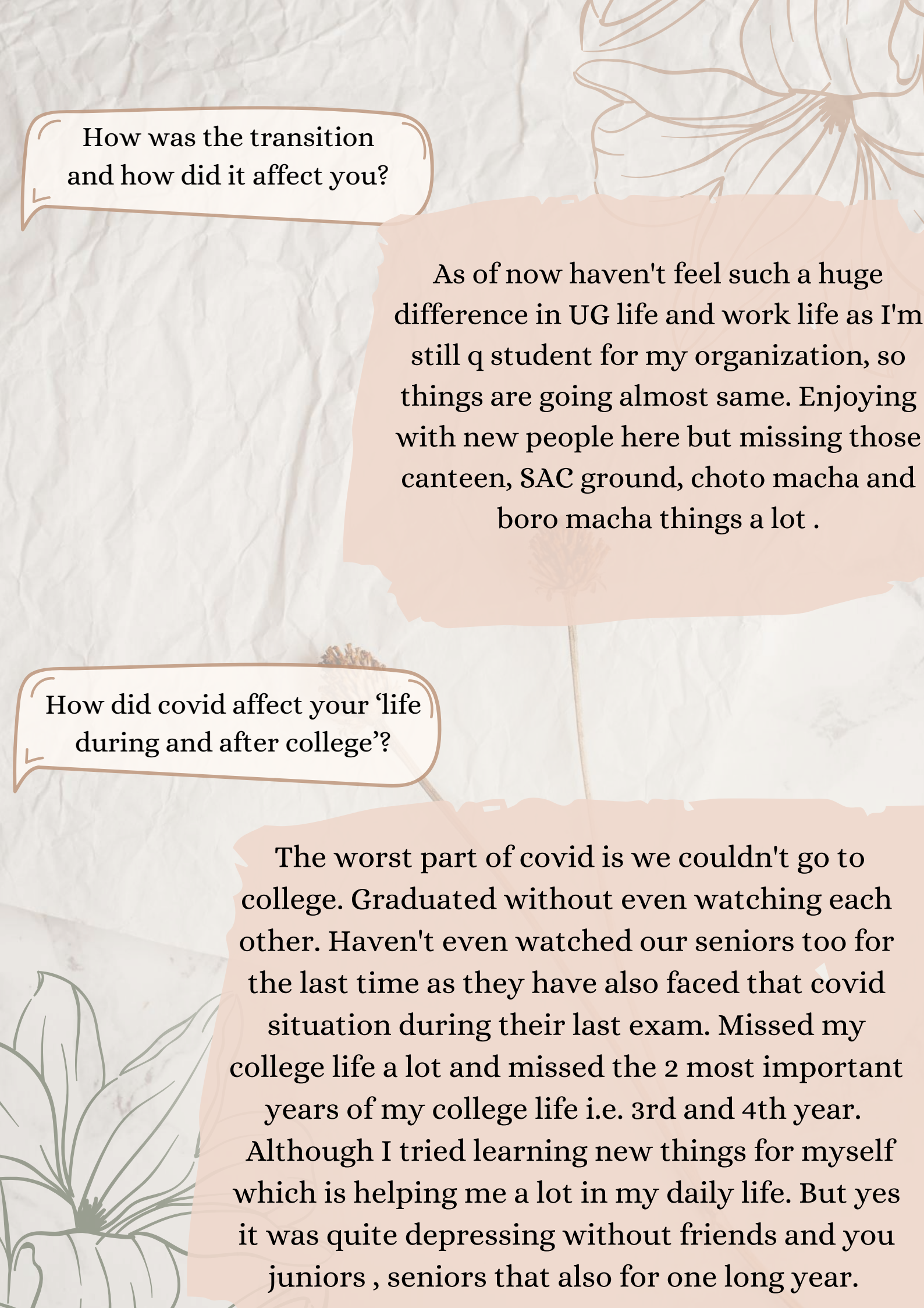
## Ambar Adhikari

*2021 Passout*



How's life after your UG?

I'm in IT sector now. My training going on. And in IT, your training period is like your honeymoon period they say and yes exactly it is. Learning a lot but having a lot of fun so no pressure as of now. But when I'll start working in a real time project, don't know what will happen! I have to manage my time properly for both personal and professional life.

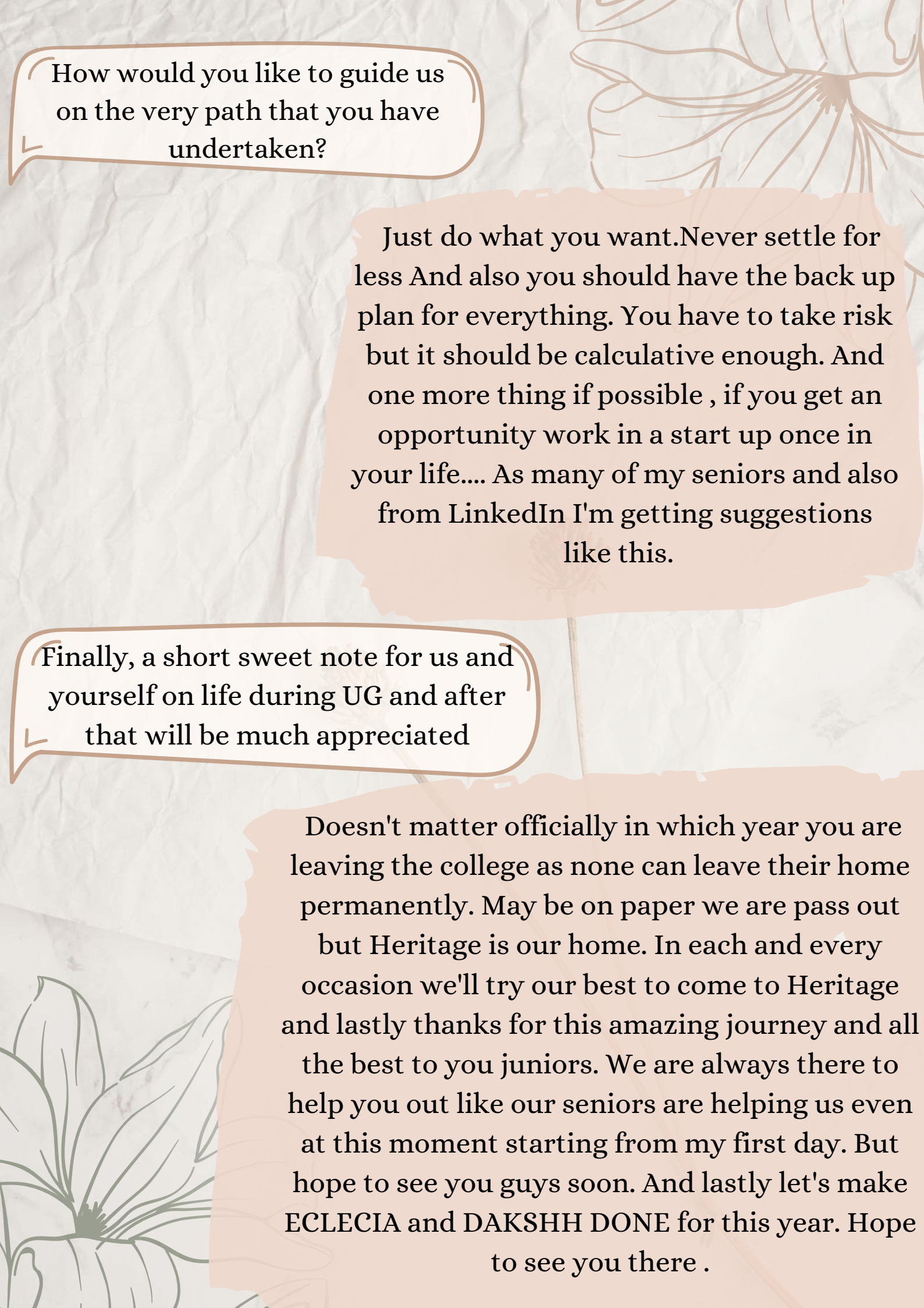


How was the transition and how did it affect you?

As of now haven't feel such a huge difference in UG life and work life as I'm still a student for my organization, so things are going almost same. Enjoying with new people here but missing those canteen, SAC ground, choto macha and boro macha things a lot .

How did covid affect your 'life during and after college'?

The worst part of covid is we couldn't go to college. Graduated without even watching each other. Haven't even watched our seniors too for the last time as they have also faced that covid situation during their last exam. Missed my college life a lot and missed the 2 most important years of my college life i.e. 3rd and 4th year. Although I tried learning new things for myself which is helping me a lot in my daily life. But yes it was quite depressing without friends and you juniors , seniors that also for one long year.



How would you like to guide us on the very path that you have undertaken?

Just do what you want. Never settle for less. And also you should have the back up plan for everything. You have to take risk but it should be calculative enough. And one more thing if possible, if you get an opportunity work in a start up once in your life... As many of my seniors and also from LinkedIn I'm getting suggestions like this.

Finally, a short sweet note for us and yourself on life during UG and after that will be much appreciated

Doesn't matter officially in which year you are leaving the college as none can leave their home permanently. Maybe on paper we are pass out but Heritage is our home. In each and every occasion we'll try our best to come to Heritage and lastly thanks for this amazing journey and all the best to you juniors. We are always there to help you out like our seniors are helping us even at this moment starting from my first day. But hope to see you guys soon. And lastly let's make ECLECIA and DAKSHH DONE for this year. Hope to see you there .



# Abhishek Bhattacharya

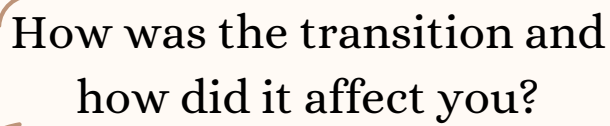
*2021 Passout*

How's life after your UG?

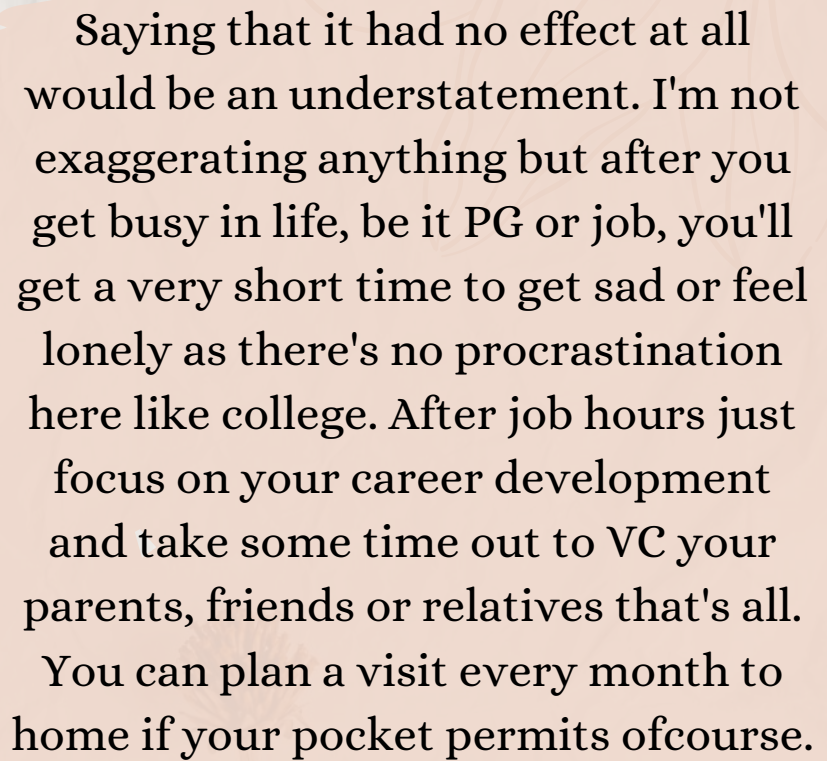
Corporate life is ofcourse not as easy as college life. But the thing is the psychology works like at the end of the day you'll be paid for what you're doing so you don't have to watch any motivational videos or anything to deal with the stuffs it'll come by itself.

Just for those staying away from home like me for the first time all by yourself, the first 5-6 months it'll feel awkward and you'll feel homesick.

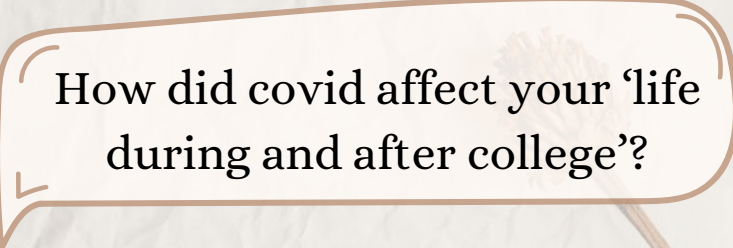
After that everything will fall into place and you'll automatically adapt to the situation.



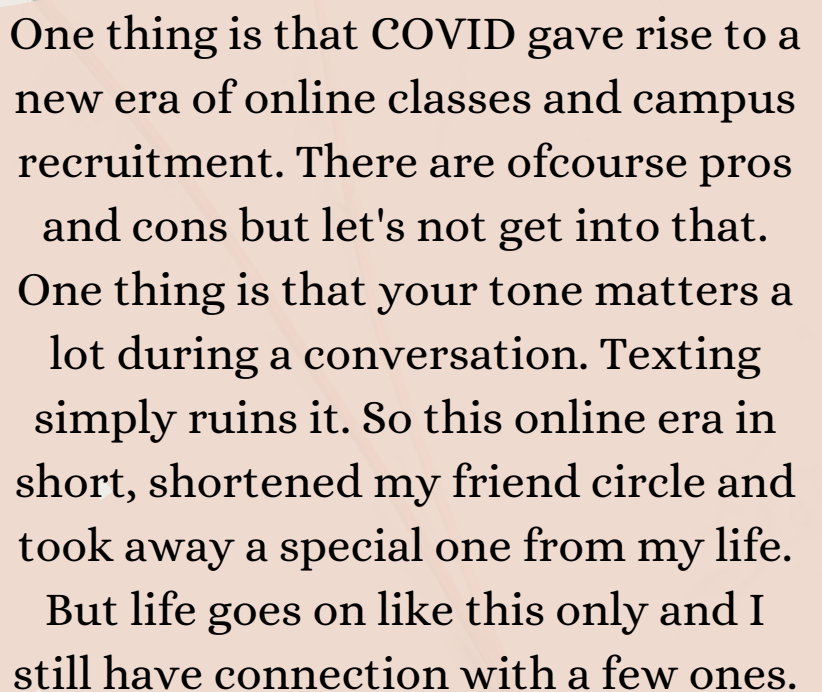
How was the transition and how did it affect you?



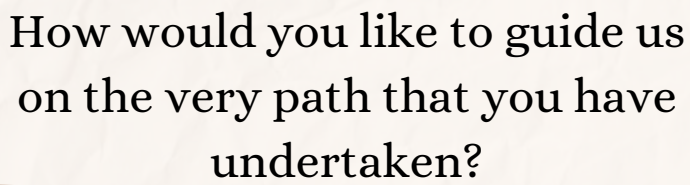
Saying that it had no effect at all would be an understatement. I'm not exaggerating anything but after you get busy in life, be it PG or job, you'll get a very short time to get sad or feel lonely as there's no procrastination here like college. After job hours just focus on your career development and take some time out to VC your parents, friends or relatives that's all. You can plan a visit every month to home if your pocket permits ofcourse.



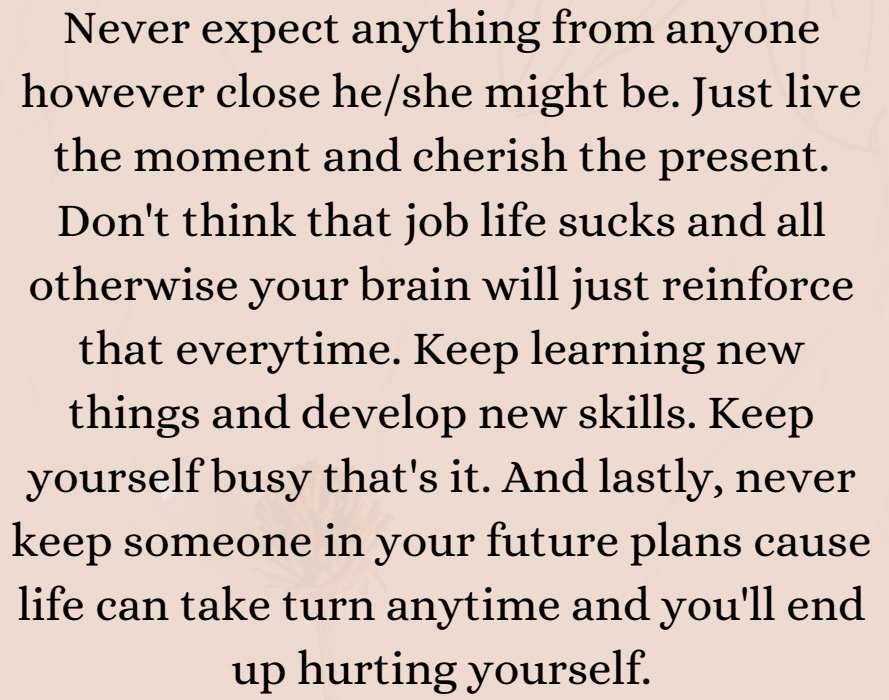
How did covid affect your 'life during and after college'?



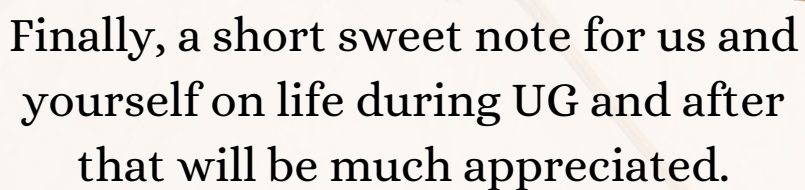
One thing is that COVID gave rise to a new era of online classes and campus recruitment. There are ofcourse pros and cons but let's not get into that. One thing is that your tone matters a lot during a conversation. Texting simply ruins it. So this online era in short, shortened my friend circle and took away a special one from my life. But life goes on like this only and I still have connection with a few ones.



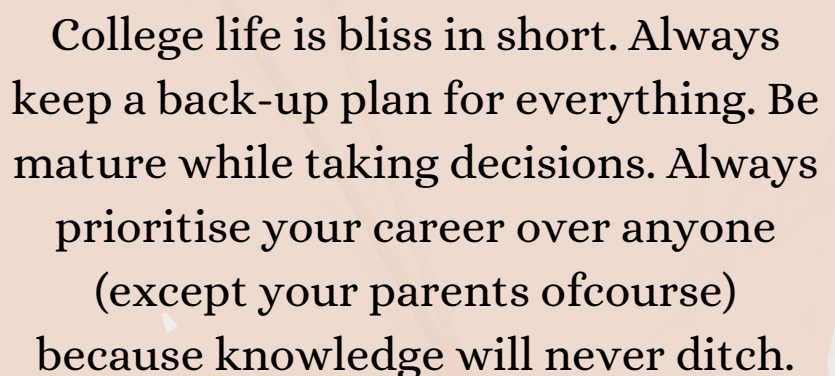
How would you like to guide us on the very path that you have undertaken?




Never expect anything from anyone however close he/she might be. Just live the moment and cherish the present. Don't think that job life sucks and all otherwise your brain will just reinforce that everytime. Keep learning new things and develop new skills. Keep yourself busy that's it. And lastly, never keep someone in your future plans cause life can take turn anytime and you'll end up hurting yourself.



Finally, a short sweet note for us and yourself on life during UG and after that will be much appreciated.



College life is bliss in short. Always keep a back-up plan for everything. Be mature while taking decisions. Always prioritise your career over anyone (except your parents ofcourse) because knowledge will never ditch.







# Shuvam Poddar

*2021 Passout*

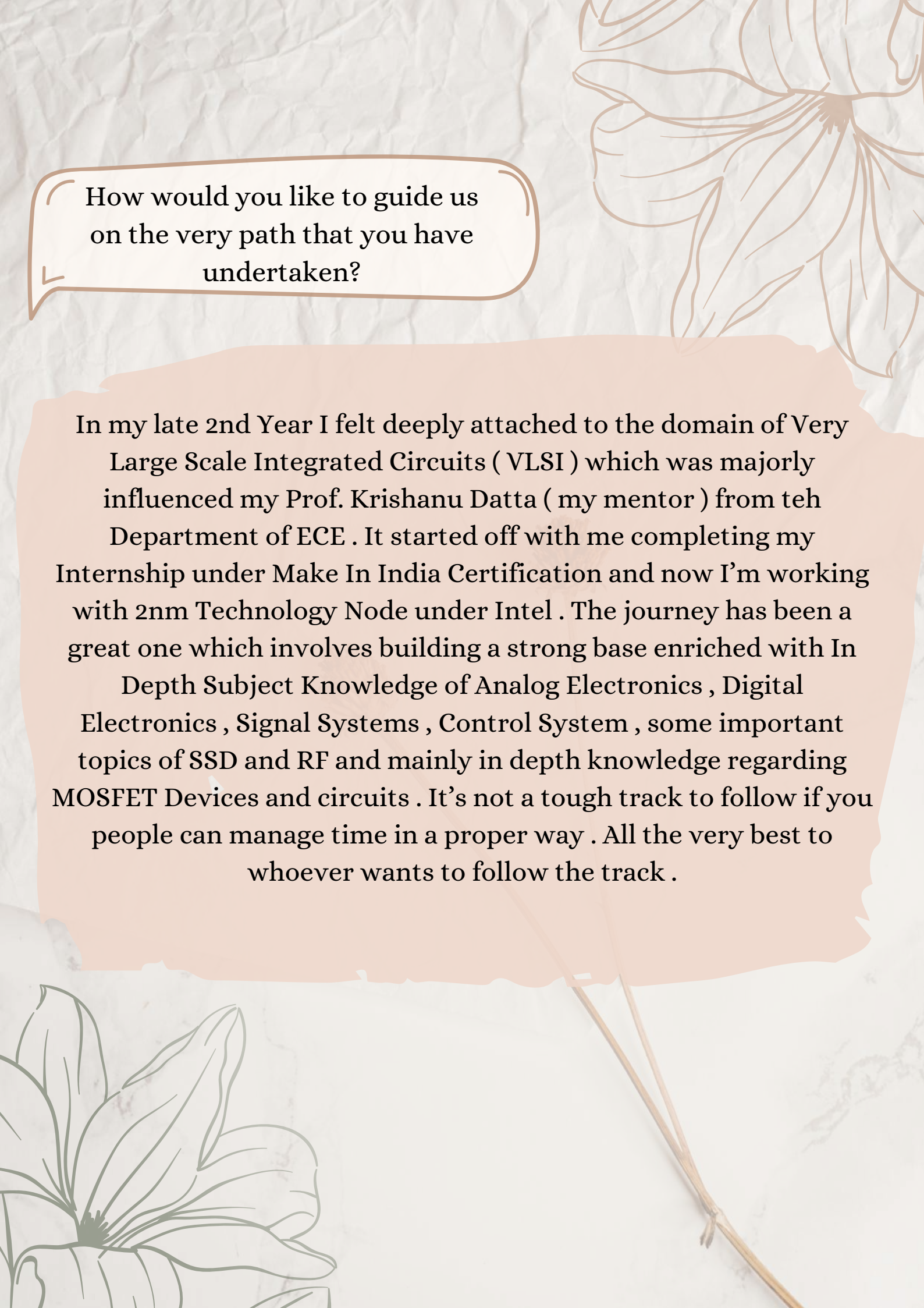
How's life after your UG?

Heritage has always been the place closest to my heart . My life as an Undergraduate student at HITK was full of challenges which I tried to cope up with zest and zeal . Life as a working professional is somewhat the same . It is full of challenges . Although the love and passion in doing College activities is somewhat missing being an working professional . A small advice : Heritage is a place which transforms you to handle extra amount of work pressure which if you love with love and care for the betterment of your college also lubricates your work life and helps in easy Ramping up .

How did covid affect your 'life during and after college'?

Covid 19 took away the most important Part of our college life . We lost our most respectable Principal Sir and also many important Professors whom we dearly miss . When the Students Council was formed in Jan 29th '20 , it was the happiest phase for us . HITK witnessed an event like NASCENT '20 after such a long gap . But due to the pandemic and the lockdown in West Bengal , we couldn't end up doing our Technical Fest 'Dakkssh' and Cultural Fest Eclectia . We still feel sad about these facts . But it also helped us being the students evolve ourselves in the social media platform in which the Students' Council had more than 50 Online Technical-Cultural events in which all the 17 Clubs of HITK were involved . The HITK Students' Covid Relief Force was also formed having more than 300 students which worked in multiple dimensions helping the people in need . The Pandemic helped in evolve as studnets . We feel sad about the ones we lost.

Ampere has always been something very much close to my heart . It feels great to see Sayantani Ma'am for advising the Ampere Executive team to work in the most proper way and I'm ever thankful to my Juniors forming the Ampere Board of Committee to give me an opportunity to share my views in this section . Great Job .



How would you like to guide us on the very path that you have undertaken?

In my late 2nd Year I felt deeply attached to the domain of Very Large Scale Integrated Circuits ( VLSI ) which was majorly influenced by my Prof. Krishanu Datta ( my mentor ) from the Department of ECE . It started off with me completing my Internship under Make In India Certification and now I'm working with 2nm Technology Node under Intel . The journey has been a great one which involves building a strong base enriched with In Depth Subject Knowledge of Analog Electronics , Digital Electronics , Signal Systems , Control System , some important topics of SSD and RF and mainly in depth knowledge regarding MOSFET Devices and circuits . It's not a tough track to follow if you people can manage time in a proper way . All the very best to whoever wants to follow the track .



# CURRENT Affairs



## WHAT IS BIO DIESEL?

Biodiesel is a biodegradable and renewable fuel that is manufactured domestically from animal fats, vegetable oils, or recycled restaurant grease.

## USE OF BIO-DIESEL IN DIESEL LOCOS

The Indian Railways is planning to run its diesel locomotives fleet using bio-diesel. The Indian Railways has informed the

Parliament that the B-5 bio-diesel has been tested for the operation of diesel locomotives by the Research Designs and Standards Organisation (RDSO). Overview:

Initially, bio-diesel might be used for running diesel locomotives on a pilot basis

- Initially, bio-diesel might be used for running diesel locomotives on a pilot basis before its usage is made mandatory by the railways.
- Bio-diesel usage will help in saving on the diesel bill of the railways.

- Bio-diesel will also help in reducing emissions, thus decreasing pollution.
- In 2018-29 the high-speed diesel cost, including the freight, taxes stood at Rs 18,587.14 crore while in 2019-20 it was Rs 16,030.58 crore.
- The diesel expenditure of the Indian railways is expected to fall as the railways is trying to achieve 100 percent electrification by 2023 end though diesel locomotives will be in use for quite a while for the purpose of freight operations.

# GREEN HYDROGEN FUEL CELL ELECTRIC VEHICLE (FCEV)

## ABOUT GREEN HYDROGEN

Green hydrogen is the hydrogen produced using renewable energy through electrolysis. Green hydrogen helps to decarbonize various sectors such as road transportation.

Introducing Fuel Cell Electric Vehicle (FCEV) technology to tap into the green hydrogen's potential will help in providing clean and affordable energy for all.

## About FCEV

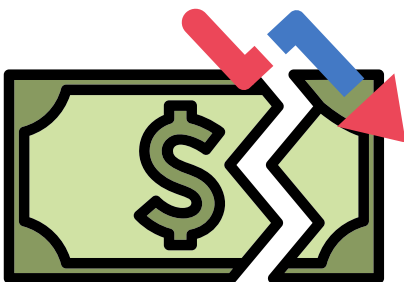
Fuel Cell Electric Vehicle (FCEV) is powered by hydrogen. FCEV is environment-friendly, as it has zero tailpipe emissions. Thus it is one of the best zero-emission solutions.

## ABOUT PILOT PROJECT

- This pilot project was initiated by Toyota Kirloskar Motor Pvt. Ltd. For this project, Toyota will work with International Center for Automotive Technology (ICAT).
- The project involves studying and evaluating the world's most advanced Fuel Cell Electric Vehicle (FCEV) called "Toyota Mirai" on Indian roads and climatic conditions.
- The aim is to spread awareness regarding Hydrogen, Fuel Cell Electric Vehicle (FCEV) technology, and disseminate the benefits to support a hydrogen-based ecosystem.



# SRI LANKA ECONOMIC CRISIS



*"Twin deficits signal that a country's national expenditure exceeds its national income, and that its production of tradable goods and services is inadequate."*

## HOW DID SRI LANKA GET HERE?

*"Sri Lanka is a classic twin deficits economy"*

Critics say the roots of the crisis, the worst in several decades, lie in economic mismanagement by successive governments that created and sustained a twin deficit – a budget shortfall alongside a current account deficit.

But the current crisis was accelerated by deep tax cuts promised by Rajapaksa during a 2019 election campaign that were enacted months before the COVID-19 pandemic, which wiped out parts of Sri Lanka's economy.

With the country's lucrative tourism industry and foreign workers' remittances sapped by the pandemic, credit ratings agencies moved to downgrade Sri Lanka and effectively locked it out of international capital markets.

In turn, Sri Lanka's debt management programme, which depended on accessing those markets, derailed and foreign exchange reserves plummeted by almost 70 per cent in two years. The Rajapaksa government's decision to ban all chemical fertilisers in 2021, a move that was later reversed, also hit the country's farm sector and triggered a drop in the critical rice crop.

## WHAT HAPPENS WITH SRI LANKA'S FOREIGN DEBT?

As of February, the country was left with only \$2.31 billion in its reserves but faces debt repayments of around \$4 billion in 2022, including a \$1 billion international sovereign bond (ISB) maturing in July. ISBs make up the largest share of Sri Lanka's foreign debt at \$12.55 billion, with the Asian Development Bank, Japan and China among the other major lenders.

# INDIA: NEW WHEAT SUPPLIER OF EGYPT

The prices of Indian wheat shot up to USD 360 per tonne in the aftermath of the crisis.

The prices of Indian wheat shot up to USD 360 per tonne in the aftermath of the crisis. Indian wheat is still the cheapest in the global market and the absence of Russia and Ukraine from the global markets presents the nation with a huge opportunity to export record quantities of wheat..

The world's second-largest wheat producer is India with a share of around 14.14 percent in global wheat production in 2020. Annually, the country produces 107.59 million tonnes of wheat with a majority of it being used for domestic consumption (98 million tonnes). The major wheat-growing states are Punjab, Uttar Pradesh, Madhya Pradesh, Haryana, Bihar, Rajasthan, and Gujarat.

In the period of April to January 2021-22, the wheat exports of India rose to USD 1.74 billion while in the same period in 2020-21 it was USD 340.17 million. In 2019-20 the wheat exports of the country were worth USD 61.84 million, and in 2020-21 it was USD 549.67 million. Bangladesh is the biggest importer of Indian wheat. India has also entered new markets like Afghanistan, Yemen, Indonesia, and Qatar. The country is looking to replace the Ukrainian and Russian dominance in around 30 wheat importing countries across the planet. Out of these 30 countries, around 10 to 15 are existing customers, but the share of India is very less. The remaining countries are exclusive buyers of Russian and Ukrainian wheat. In the world, India's wheat exports account for less than 1 percent. The share has increased to 0.54 percent in 2020 from 0.14 percent in 2016.



- After a rigorous process of checks of quarantine facilities and field visits by Egyptian officials in India after there were complaints of Indian wheat infected with 'karnal bunt' disease, the export was approved.
- The officials visited wheat fields in UP, Madhya Pradesh, and Punjab to check the wheat quality produced in the country.
- In FY23, India aims to export 10 to 11 million tonnes of wheat as global demand is surging following the Russia-Ukraine crisis.

## INDIA IN 4 UN ECOSOC BODIES



### The 4 bodies to which India has been elected

- The Committee on Economic, Social, and Cultural Rights
- The Commission for Social Development
- The Committee on Non-Governmental Organisations
- The Commission on Science and Technology for Development

### About Committee on Non-Governmental Organisations

This is ECOSOC's standing committee and was established in 1946. The committee's main tasks include considering petitions for consultative status and reclassification requests that are submitted by non-governmental organizations.

### About UN Commission on Science and Technology for Development

It is a subsidiary body of the ECOSOC that holds an annual intergovernmental forum to discuss pertinent issues that are affecting science, technology, and development. It also provides the ECOSOC and the UNGA with high-level advice that is related to the fields of science and technology issues.

### About the ECOSOC Committee on Economic, Social and Cultural Rights

It is a body of 18 independent experts that looks to monitor the International Covenant on Economic, Social, and Cultural Rights by its State Parties implementation. This committee lays down the rights to adequate education, adequate food, housing, health, sanitation, water, and work.

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(2019-2023)

**ECE**

**GATE SCORE**

**683**

**AIR**

**374**

**MARKS**

**51.67**



**SANTANU SAMANTA**  
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**ECE**

**GATE SCORE**

**596**

**AIR**

**924**

**MARKS**

**44.67**



**SRIMAYEE GHOSH**  
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**ECE**



GATE SCORE	587
AIR	999
MARKS	44

**SHIVAM SHUKLA**  
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**ECE**



GATE SCORE	546
AIR	1431
MARKS	40.67

GATE SCORE

572

**IN**

AIR

531

MARKS

59.67





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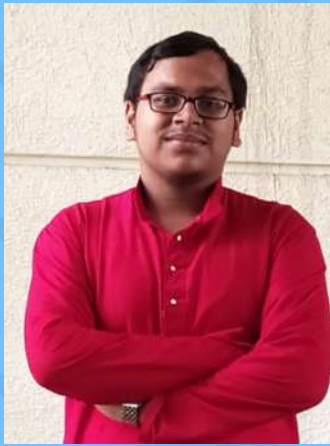
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ECE 3rd



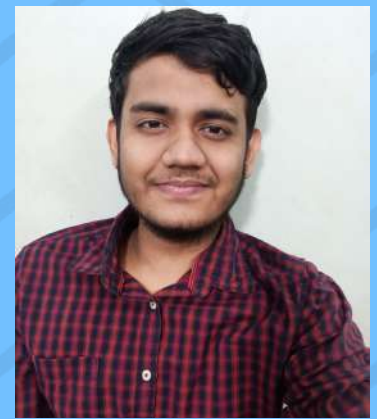
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- RAJAT JANA (2ND YEAR)
- AYAN BHATTACHARYA (2ND YEAR)
- ABHIBHAB MITRA THAKUR(2ND YEAR)
- BARSHA ROY(2ND YEAR)
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- RISHAV DAS (2ND YEAR)
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