WISE

VOL III

Issue
September, 2021

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BITWISE

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WORDS OF ENCOURAGEMENT

DR. RAMA
PRINCIPAL

Hansraj College stands strong as an educational platform for students to achieve academic excellence through continuous learning, critical thinking, and a conducive environment. The institution is on the path of success, setting high standards for itself and all. An immaculate pillar in the field of Arts, Science and Commerce, this college is proud of all its departments and students.

There has been an imminent paradigm shift modifying our behaviour and age old practices due to Covid-19. Education sector is actively exploring alternative methods for content delivery, student evaluation, and effective engagement of human resources. We at Hansraj, have been successfully conducting online classes in this pandemic situation. Challenges of such proportions bring golden opportunities as well. We can be self-reliant in many technological domains by having technology interventions.

The Computer Science Department of our College, with their persistent motive of spreading technical awareness in the college and outside, is presenting the new edition of BITWISE. The idea behind the magazine is to engross the reader while leading them to the world of advancements. In a world where no one can afford to be technologically impaired, these pages with words carved on them will come as a great help. All of us have a scope and responsibility and I am sure that you would like to carve out a role for you in this endeavour amidst the diverse opportunities. I wish you all luck for your future endeavours!

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ANNUAL REPORT 2020-2021

COMPUTER SCIENCE SOCIETY, HANSRAJ COLLEGE

This academic year saw the first ever completely online session and Ordinateur, the Computer Science Society of Hansraj College, has been more than eager to overcome the challenge and provide an amazing learning experience to the students. A plethora of events was successfully organized by the dedicated team members and volunteers of Ordinateur.

An enlightening session with the department alumni was conducted which made for a wonderful experience for the students giving them insights into the best career opportunities in the field of Computer Science. The invited alumni were- Avishi Goyal, Shruti Katyal, Anmol Goel, Swati Bajpai and Ronak Aggarwal.

'Tech-Trickery', a coding event and 'TechXplore', an article writing competition were organized to encourage holistic development of the students. These events saw an active participation of hundreds of students across India.

A two-day workshop on Cinematography and Infographics was led by Mr. Anuj Kumar, an alumnus of the Department. The workshop equipped the participants with relevant designing and editing skills.

The department conducted interesting sessions based on the topics CV Building by Ms. Isha Nagaich, Category Manager at Jumbotail; Open Source Trends by Mr. Kartik Sapra, mentor at Coding Blocks; Cyber Hygiene in Pandemic by Mr. Rahul Tyagi, Co-founder of SAFE Security. These sessions were attended by students from various colleges and universities and proved to be beneficial for them. Besides, regular informative series were launched on the department's social media handles to keep the students apprised of the technical world.

A team gaming event, Valorant Cup, was organized to encourage the spirit of healthy competition and sports among the students.

The Annual Tech-Fest Cynosure 2k21, organized online this time was a composite of a session on Career Opportunities in IT, various technical events including coding, quizzing, treasure hunt and gaming; and non-technical events as well. The events witnessed huge participation with munificent giveaways to the victors.

This year of Ordinateur concluded with another talk with the department alumni to enable the students have a closer look at career planning and learn from the experience of their seniors. The invited alumni were- Bushra Aleem, Ajay, Mridula Garg and Meghna Agarwal.

The department is forever committed to learning and imparting knowledge.

LETTER from THE EDITOR

"Technology, like art, is a soaring exercise of the human imagination," said Daniel Bell, one of the leading American intellectuals of the postwar era. It couldn't be more accurate. The extent to which human thinking can go is unbelievable. Who would have thought that one day we will have devices that will be able to create an immersive illusion and make a virtual environment feel lifelike? Or who would have thought that scientists will be working on building a technology that might help upcoming generations to be born with superpowers? It's astounding, isn't it?
Undoubtedly it's the creative and ingenious minds of humans that are behind these mind-boggling technological advancements. The comfort and efficiency given by these technologies have improved our lives to a great extent. Though these technologies have made our lives easier and safer, on the other hand, they also have negative impacts. With a dramatic increase in our dependency on specific technologies, we become vulnerable to a catastrophic setback if a central technology is incapacitated. With an idea to spread the word about these wonders and impart knowledge, we have come up with another edition of BITWISE.
BITWISE is an opportunity to share complete insights into the technological advancements happening around the world. I hope that our sincere efforts will instigate your curious minds to think out of the box and learn new things.
I would like to express my gratitude to our principal Dr. Rama and to all the faculty members of the Computer Science Department, Hansraj College for their constant support throughout. I would also like to thank my team members for the great efforts they have put into BITWISE.
Happy Reading!

Aakriti Sharma
Editor in Chief

BITWISE TEAM 2020-2021

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ACHIEVEMENTS (ACADEMICS)

1. Placements

- Kartikeya Gupta received placement offer from UBER.
- Manoj Bhatt was placed as Tech Associate at D.E. Shaw India Pvt. Ltd.
- Akshat Jain was placed as Data Analyst at Galytix Analytix.
- Sukrati Agarwal grabbed placement offers from Deloitte and Better.com.
- Sai Rohith Thatla got placed as a Full Time Business Development Executive at Vagmine Education LLP.

2. Internships

- Nidhish Goel worked as Research Intern at GBFA(Goal Buster Football Academy).
- Dhirender Kumar worked as an intern at Chegg as TBS expert.
- Sai Rohith Thatla worked as Video Editor Team Leader Intern at Anti Corona Task Force; Campus Ambassador intern at Your Campus Guide and Social Media Marketer Intern at Hareen Team work.
- Kartikeya Gupta worked with Mexico based researchers as an investor and Business advisor. He also interned with Niti Aayog and National Skill Development Council.
- Abhishek Srivastava interned at BCG and Deloitte.
- Ishika Bhardwaj worked as Research Intern at Safe Security; Cloud Intern at Internity Foundation and Business Development Executive Intern at Let's Vume.
- Nancy Tayal worked as Data Analyst Intern and Problem Solver at Internity Foundation and Django Developer Intern at Sapio Analytics.
- Khushboo Gupta worked as Data Science Intern at Internity Foundation; Full Stack Developer Intern at Paleru Technologies Pvt. Ltd. and Software Engineer at SkyLark Labs.
- Varda Jain worked as Tax Technology Intern at Ernst&Young.
- Aakriti Sharma worked as Data Science Intern at Internity Foundation and Backend Developer Intern at Cureya.
- Benika Yadav worked as Marketing and Research Intern at Age19 and Takenmind.
- Chahat Budhiraja worked as Tax Technology Intern at EY,LLP; Operations Intern at Wealthee Monk and Project Consultant at Those In Need.
- Vaasu Bhartia worked as Frontend Software Developer Intern at CuriousJr and Business Development Intern at EnrichAI.
- Sneha Raina worked as Business Development Intern at Contesera Innovations and Consultancy Intern at Admission Abroad.
- Riya Tyagi worked as Product Poster Designing Intern at Prayaana.
- Ashwik Ram Konda interned as Junior Associate at Moolya Foundation.
- Vivek Kumar interned at Instaraise.

3. Competitions

- Dhirender Kumar cracked GATE'21.
- Sukrati Agarwal made it to top 42 and top 8 teams in Standard Chartered Diversity Hackathon among 14k participans.
- Ishika Bhardwaj got selected in the final round of SIH 2020.
- Sarthak Prakash secured 3rd place in TechXplore organized by Ordinateur.
- Vivek Kumar won "Hack the Mountain 2.0 Hackathon" and "MLH Hacktoon Hardware Category". He was also selected for Tezos India Fellowship.

4. Start ups / Projects

- Kartikeya Gupta started a start up named Webninjaz, an IT Consulting and Web Development firm.
- Five students published mobile apps which are now available on Google play store.
  - Fashion Sahayak by Hemant Giri Goswami.
  - Mulk Kosh by Harshit and Deepanshu.
  - Kids Learning app by Saumya Gangwar.
  - Readmania by Tanveer
- Jahanvee Garg worked on developing an online exam portal under the guidance of seniors.
- Khushboo Gupta and Aakriti Sharma developed a dynamic bike renting web application.

ACHIEVEMENTS (CO-CURRICULAR)

- Kartikeya Gupta represented Enactus Hansraj Globally; and won the National competition competing against 70+ colleges across India and 37 country globally.
- Sai Rohith Thatla worked as sergeant at NCC Hansraj College for 2 years. He was awarded as the Best in Drill and Commanding during CATC camp conducted by 6DBN at Rohini.
- Akshat Jain won the first prize in group discussion competition organised by Parikalan, the CS Society of PGDAV College and second prize in 'Speak To Lead' organised by Sattva, the CS Society of Kalindi College.
- Nidhish Goel represented Delhi in National Futsal Championship and was also a part of Football team of Hansraj College.
- Sukrati Agarwal was the Joint Secretary of Hansraj College.
- Vidhi Khare was the President of Spic Macay, Hansraj Chapter.
- Dhirender Kumar was the Media and PR Head of Spic Macay, Hansraj Chapter.
- Khusboo Gupta was the President of Ordinateur and the Creative Coordinator of NSS Hansraj.
- Akkati Chethan was the Technical Head of Ordinateur; and the Director of technical department at Synergy.
- Ishika Bhardwaj was the Joint Secretary of Nishtha; the PR and Marketing Head of Ordinateur and the Technical Head of Neenv.
- Jahanvee Garg was the Technical Head of Ordinateur and the Technical Head of Nishtha.
- Anushka Bahuguna was the Technical Head of Nishtha.
- Aakriti Sharma was the Creative Head of Nishtha and Magazine Head of Ordinateur.
- Nancy Tayal was the Creative Head of Nishtha.
- Abhishek Srivastava was the Technical Coordinator of NSS Hansraj.
- Pardyum Yadav was a coordinator in NSS Hansraj and the JUO in NCC.
- Chahat Budhiraja worked as Joint Secretary at Entrepreneurial Cell and General Secretary at Cases Over Coffee, Hansraj College. She also carried forward the process of setting up an Incubation Centre at Hansraj College.

5G - Things You Need to Know!

For the past few months, we have seen a lot of buzz about 5G in India. The Department of Telecommunications has asked for reports from industry experts on radio frequency spectrum usage in the coming years. Also, many popular smartphone brands have started the race to launch 5G smartphones in India but do you need to spend extra money to get one? There is a lot of confusion about 5G, so let's check out what 5G is in layman terms.

If we utter the word 5G, then most of us think about fast speeds, but 5G is not just about fast speeds; it's more than that. 5G is an improvement over the existing 4G LTE Network. The first improvement we will get in 5G is less latency. In terms of network, latency is the time taken by a request to travel from the sender to the receiver and the receiver's time to process and respond back to the sender.

Often there is a lag in online gaming; this is due to high latency. The average latency on a 4G network is about 50 milliseconds; that too, in the best-case scenario. Generally, it is even higher. In 5G, we aim to lower this latency to as low as 1ms, but we haven't reached this yet. Early users of Verizon's 5G Ultra -Wideband network in Chicago and Minneapolis reported peak speeds of nearly 1 Gbps and latency less than 30ms, i.e., 23ms faster than the average 4G metrics.

Another improvement is that 5G network will allow us to have many more devices in a particular area. 4G can generally support around 1 Lakh devices in one sq. kilometer area and 5G is trying to increase this number by 10x, i.e., about 10 Lakh devices.

You might have noticed that if you go to a highly crowded public place and try to access the internet through mobile data, then you experience very slow internet speeds, and you can hardly use it.

This is caused due to network congestion. With 5G, this issue is expected to become a thing of the past.

The 5G Bands are broadly divided into two types: sub-6 GHz and mmWave (millimeter waveband). The mmWave are extremely high-frequency waves.

The speed tests we see with 1Gbps or 1.5Gbps speeds are all done on the mmWave. The mmWave are not fit for practical usage. No doubt they can provide us blazing fast speeds, but the problem is that the signal strength of the mmWave is so weak that even if there is a tree or wall in the path or it is raining heavily, the signal will be blocked.

It means, if you are indoors, you will hardly get the signal because it needs line of sight. To implement mmWave, ISPs might have to put small towers at an approximate distance of every 100m. The other part is the sub - 6GHz Band ranging from 410MHz to 6GHz. This is further divided into two bands, one is below 1000Mhz and other is above 2.5GHz (also known as mid bands). To have an idea about the use of different bands, we will take an example of Wi-Fi routers that we use at our homes and offices. Consider the case of 2.4GHz Band that most people generally use; the range of the 2.4GHz band is pretty good, but the speed you get on it is quite low, about 50-60 Mbps. In case of 5GHz Band, the speeds you get are far better, but the range covered is less. In sub - 6GHz, we have the same thing; below 1000MHz, we will have better coverage and less speed, while we will get higher speeds but less coverage in case of mid bands.

It is not yet confirmed which bands will be used in India for 5G. Most probably, mid bands will be used to get decent enough speeds and range.Therefore, before buying a new 5G smartphone, check that it supports almost all 5G Bands.

If a phone is 5G enabled, then it needs all those 5G Bands to make use of it. For example, if your ISP provides 5G on 4GHz Band and your phone technically supports 5G, but it doesn't have that 4GHz Band, you will not get 5G. So, if you are buying a smartphone now, then make sure about what 5G Bands are supported by it. You might have heard of OnePlus Nord.

The company claims that it is a 5G capable phone, but it supports only one Band of 5G. If an ISP in India will offer 5G on a band other than that, then 5G capability of OnePlus Nord will be of no use.

Reliance Jio will probably launch 5G services in India in 2021. Mr. Mukesh Ambani, Reliance's CEO, announced this at the Fourth edition of IMC. He said that the company might implement 5G services in the second half of 2021. Recently, Jio & Airtel have started extensive testing of 5G services using completely indigenous technology.

Therefore, if you are buying a 5G phone and planning to keep it for the next three years, make sure it supports all the 5G bands, and don't buy a phone by just looking at that 5G tag.

- Sarthak Prakash

Brain Computer Interfaces

- The Neo Era of machine human interaction

At some point in your life, you might have heard the phrase "you can do anything you put your mind to...", but if we took that in a literal sense, then just how FAR can we go!! What if, one day we could have the technology to move objects with our minds. This may sound like a childhood dream instilled within us via illustrious & eminent movie franchises like Star Wars, X-Men, and The Matrix. All of this is a fabled idea, which comes under the sphere of psychic mysticism, which is rather inception for telepathy (vicarious transmission of information from one person to another without using any known human sensory channels or physical interaction.) and telekinesis (ability to move objects at a distance by mental power).

The human brain is one of the largest and complex organs, and for a good reason, it's made up of over hundred billion nerves which communicate in trillion connections known as synapsis. Every action we think or take, originates from the brain.

Its mastery over our sensory organs makes it arguably the most important organ in the human body. Despite the numerous capabilities of our brain, why would we consider interfacing it with a computer or any other machine?

Considering the need to incorporate the technologies we've developed into our bodies to evolve beyond our current capacities, we have developed Brain computer interface (BCI).

In simple terms, it can be stated as a pathway that allows communication between a machine and a brain. If a group of people was being asked a question, say what their favorite food was and were given a set of options to choose from.

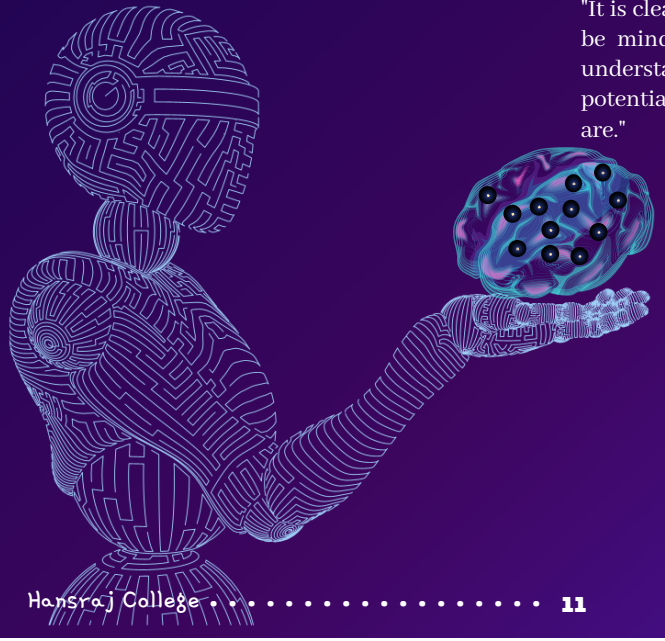
The brain activity during the question-and-answer phase could be recorded by a BCI, allowing the system to guess what each person will decide when repeated the test simply by comparing their brain activity from their previous test. Now what's making this interface so much effective is - its combination with AI. Over the past two decades, Neuroscience & Artificial Intelligence development has made possible or relatively enhanced brain interaction with machines, especially computers. BCI uses Electroencephalogram (EEG) {a signal processing methodology} combined with an AI-powered algorithm, which has enabled us to probe into the neo era of human factor design.

This covid-19 pandemic has led to a surge in online conferences, such as office meetings or online classes. One of the major trade-offs of using online media extensively is the lack of social interaction. Now here comes BCI; with the use of BCI, one can know whether others in the meeting are paying attention. Moreover, you can even design a presentation just by using your thoughts. Currently, all of these scenarios are merely imagination, but with the recent development in the field of BCIs, these might soon become a reality. BCI, since its inception (in the 1970s), has developed significantly. It was initially more concerned with assisting paralyzed people, but now it has found its application in various sectors. It wouldn't be a matter of surprise to see a surge in professionals leveraging BCI tools for improving their efficiency at work. "Muse," a Toronto-based start-up, has developed a headband that gives real-time information of what's going in your brain.

These headbands provide insights related to the engagement of workers/users using proprietary sensors to detect brain signals along with machine learning algorithms. However, the prime hindrance in accomplishing BCIs would be individual's privacy. Imagine how you would feel if someone else in your workspace gets to know your feelings or manipulate your thoughts without your consent? Although BCIs are being developed to prevent AI from overtaking humanity in the future, what if all of your information is used against you? Will this really do any good to humanity?

For me, privacy matters the most and infusion of this technology in the real world should be only done under maximal regulation and policies. Nevertheless, all of these are still under research, and implementation is slowly engrossing the mass market. It would be highly commendable if the business leaders start framing a safe and secure strategy because, like AI, it'll become ubiquitous in the twinkling of an eye.

"It is clear that in this coming future, we must be mindful of how important it is that we understand ourselves deeply before potentially, irreversibly changing who we are."



- Md Saquib Sabri
Hansraj College,DU
1st position in TechXplore

CYBER CRIME
A THREAT TO MODERN SOCIETY

Two aspects characterize the present era: a strong emphasis on technology and the virtual space. But there is a world of potent danger and threats lurking behind the merger of these two. These threats and risks are often latent in nature, making it incredibly difficult to identify who is committing them or targeted.

For example, in crimes like cyber phishing, a user shares their login credentials to a website masquerading as a trustworthy one and then becomes a victim of fraud. The pace at which such crimes are happening is ever increasing. When it comes to laws and regulations governing the cyber world, a country like India lags far behind. In India, there are no clear laws about cybercrime, much to our surprise. Despite the fact that the IT Act of 2000 and its subsequent extension in 2008 were passed, the full scope of cybercrime has not been covered. As far as the right to privacy is concerned, this is a critical problem. When it comes to investigating cybercrimes in India, it is almost irrelevant.

What exactly is cybercrime? Cybercrime encompasses all crimes that include the use of information or electronic means in the commission of a crime. Cybercrimes may be committed against an individual, government, property, or society. A recent study by Norton revealed a noteworthy increment in cybercrimes. About 65% of internet users globally have fallen victim to cybercrimes, including computer viruses, online credit card fraud, and identity theft. America ranks third after China (83%) and Brazil & India (76%) in most victimized nations.

Now the question arises how do cybercrimes take place? Cybercrime can occur in many forms like - crimes against individuals take place in the form of online stalking, pornography, cyberbullying, etc.; crime against property includes crimes like banking frauds, hacking government institutions, human trafficking, forgery, and other forms of cybercrime are few examples. Aside from that, ATM fraud is becoming increasingly widespread these days. Criminals can easily install a machine that appears to be a legitimate one; instead of dispensing cash, the machine gathers information of the users and tells them that it is out of order only after they have typed in their PINs.

Recent studies show more than 80% of reported cyber-attacks are phishing. Every year, cybercriminals improve their phishing attacks and develop tried-and-true techniques for deceiving and stealing from innocent victims. The majority of phishing attacks are discovered via web searches or standard email address formats. Almost 94% of phishing emails use malicious attachments as the infection source.

How do we defend ourselves from cybercrime? This is one of the most pressing issues of the day. To overcome this issue, there are certain methods like using a full-service internet security suite, strong passwords, keep your software updated, manage social media settings, take measures to help protect yourself against identity theft. Because of the widespread use of the internet, cyber security has become one of the world's most pressing concerns. As cyber security threats pose a significant threat to a country's security, the government and individuals should raise awareness among the public about the importance of regularly updating system and network security settings, as well as the use of appropriate anti-virus software, to keep the system and network security settings virus and malware free.

Fighting cybercrime is, in some ways, everyone's concern. Consider it a responsibility to contribute to the war against cybercrime.

- Kanika Maheshwari

DATA BREACH- ARE FOSS OUR FUTURE?

After the recent incident of WhatsApp privacy policy update, people have made a huge leap from mainstream apps to lesser-known app such as Signal, Wire, Tox, etc. which are truly FOSS, i.e., Free and Open-Source Software. Free and open-source means that the product is completely free to use and distribute and does not charge you by any means; neither money nor data or any other thing and its source code are available to the general public to review and improve the product.

Unlike apps like Adobe CC, which are actually paid, or WhatsApp, Facebook, and Google, which don't charge anything upfront but take a price by selling your data to potential advertisers, the reason you start getting ads of those slick shoes you just searched online.

If these FOSS are so good and the mainstream apps (here on referred to as closed source) evil, why don't we see a lot of Free and Open-Source applications? There are some FOSS apps/products which are popular such as VLC media player, Android (AOSP), and Ubuntu (a well-known Linux distribution). Still, the others are often neglected and looked down on sometimes due to lack of versatility, the complexity of usage, or lack of certain functionalities that their closed source counterparts may provide.

FOSS products are truly and absolutely free, which is good for the consumers, but not for the developers because they get paid with nothing, except from whatever donations they receive. The donations barely cover the cost. At the end of the day, money is unarguably the most important thing in this capitalist world. This is the exact reason behind the lack of FOSS projects because most developers working on them are mostly employees of a corporation/company or students who work on them in their free time as side projects. FOSS can only exist for the times we currently live in if these closed source applications keep running, and hence their parent companies provide decent salaries to the developers.

Suppose we wish to see a shift from our current scenario towards a FOSS dominated future, a secure & privacy-oriented one. In that case, we need to change our attitude towards apps and software in general. Today, most people are reluctant to pay for a product or app they find interesting and discover "other" ways to use them. It is fine with the products of big companies because they are able to make a profit from us in one way or the other. Still, this attitude of ours does not help in contributing towards a FOSS-oriented future because they have no way to earn other than direct donation.

So, next time if you use a FOSS, consider donating for the sake of a safe future.

- Suyash Saxena
Deen Dayal Upadhyaya College, DU
2nd position in TechXplore

INCREASING USE OF IOT

"Internet is not just a thing anymore, things too have their internet."

In 1983 internet was officially born which was used to connect people via business or social communication and it developed to internet banking and e-commerce. Now, internet is used to link various machines via sensors and actuators to collect useful data and help to take actions to enhance human productivity and efficiency. It also promises to reduce waste, cost and inconvenience.

Basically, IOT(Internet Of Things) is the network of physical objects that are webbed with sensors, software and various technologies to connect and exchange data with other devices and systems on internet.

You all must have heard of "ALEXA". It works on the principles of IOT. These days the trend of connected devices as smart appliances are much popular. For example, we have smart homes in which whole house is controlled on your fingertips or just even your voice.

The internet of things is affecting our daily life, actions and reactions. From ACs that you can control through IR blasters in your handsets to smart cars providing the quickest routes to smartwatches tracking your calorie burn rate.

IOT is a widespread network of inter-linked devices. IOT devices collect and share information about how these devices are used and operated. This is achieved by using sensors which are fixed in every physical device. It may be your mobile phone, TV sets, barcode sensors, surveillance cameras and nearly everything, you use in everyday life. These sensors continually track and share the data about the working state of the devices.

IOT creates a common ground for these devices to share their data and a common language for all the IOT devices to communicate among themselves. But what should we ponder upon is how to make profit using this data?

Data shared by different sensors is shared to IOT platforms in a very intricate manner. IOT platform combines the collected data from different sources, performs analysis and valuable information is extracted. This extracted information is communicated with other devices to offer a better and personalized user experience.

IOT is doing wonders: In the Air Conditioner manufacturing industry, the sensors are attached to the manufactured machine. They continually share data about the machine condition and the production specifics with the makers to detect issues in advance. A barcode containing the product code, production details, model number etc. is also attached to every machine leaving the factory. The makers use this vital data to predict the retailer's inventory and can supply the stock of the products that are about to run out of stock. Also, the products are packed and sent to different sellers. Every seller has a BCR (Bar Code Reader) to track the product they receive from different makers, manage stocks, and look for specific details. The compressor of an AC contains an embedded sensor that emits data regarding its condition and temperature. This allows the customer care executive to contact you in case of any repairs.

This is just one of the million scenarios. We are surrounded by IOT and it is renewing our lifestyle and revolutionizing the very way we connect with technologies.

The IOT industry has a bright future. Business Insider predicts that 24 billion IOT devices were installed by 2020 and their revenue has reached around 761 Billion USD and at a CAGR (Compound annual growth rate) of 10.53% in the period of 2021-2026. IOT market will reach a value of 1386 Billion USD by 2026—indicating plethora of job opportunities in the IT sector.

- Aryan

CRYPTOCURRENCY - THE REVOLUTION YOU CAN'T IGNORE

Despite being swayed by money daily, we fail to commend its potentiality. It's a tool that has been the center of human progress, and as we tackle complex problems, we need the best tools available. Since the time man has evolved, the currency has been a very important part of his life because it allows us to agree upon the value of something, almost like a communication tool.

Presently we have a centralized financial system, and all of our transactions take place via big banks and rules set by the governments. The inclusion of these middlemen makes things incredibly inefficient.

Cryptocurrency decentralizes this whole system and gives control to the rest of the world. It enables "us" to participate in the global economy. Cryptocurrency has been in the limelight ever since its inception. Countless debates and discussions have been held over its reliability, and it is now coming to light as a financial tool accessible to everyone. Its potential to create economic as well as social growth across the globe cannot be denied. What makes cryptocurrency a big shot?

Approximately, one-third of the world's population keeps away from essential banking services. This leads to doubtful lending practices and instability among the people. This opens the gate for cryptocurrency to step in and provide ease of use. As it is entirely decentralized, trading can be done freely across borders. Consequently, more people will be connected financially. Another major reason for the bloom of cryptocurrency is its low transaction cost.

There is no salary to be paid to the employees or any utility bills/rent; eventually, all of these savings binds into low transaction fees. The best part about cryptocurrency is that it cannot be manipulated and exploited by any institution. This will help economically backward nations to enter the game and boost up their economy.

Besides providing humanity with such a financial blessing, several issues pertaining to the cryptocurrency transaction cannot be overlooked. First is the environmental impact. You might be wondering how a digital currency can affect the environment. It all comes down to mining. According to Digiconomist, bitcoin mining consumes around 32 terawatts of power per year. In fact, just one bitcoin transaction uses approximately 5000 times as much energy as a credit card transaction. The second issue is anonymity. Some of these cryptocurrencies are purposely untraceable, enabling anyone to pay for anything with impunity. This has resulted in flourishment of online black markets. The Silk Road, the dark web's most famous drug market, was estimated $3 billion (approx.) in value before its closure. Third, anarcho-capitalism is a political philosophy that advocates a total absence of any economic intervention by governments. This means no tax, no public services, no regulation.

Lastly, the risk that the technology could become everything it was designed to subvert, i.e., the tool of dictators. That's because repressive regimes can create digital currencies that they can monitor, giving total control over the population's finances to the government.

While we certainly cannot rule out all of those impacts, knowing that the future for cryptocurrency is something we can't circumvent. All we can do is prepare aforethought so that the torch lies in our hands amidst the colossal financial revolution which has already begun.

"If you don't believe it or don't get it, I don't have the time to try to convince you, sorry."

- Md Saquib Sabri

BIO-HACKING

IMPACT ON HUMANS?

Change is the only constant. In a world where every day we see a new invention, a new technology, these changes have become so normal in our lives, but what if I say that these changes might lead to the replacement of humans by robots. The day is not so far when this will be common in our lives. It is believed that our upcoming generations might be born with superpowers. You might be wondering how's that possible? The answer to your doubt is **BIO-HACKING**.

Bio-hacking is a technique of enhancing human bio composition; it is a technique with which scientists can design human babies with desirable traits to get superpowers. It can be done using cybernetic devices or introducing biochemicals into the body to enhance or change the bodies' functionality. It is also known as **DIY (Do It Yourself)** biology. One simple example of bio-hacking is pumping a younger person's blood into your veins in the hope that it'll fight to age. Yes, that is a real thing, and it's called a **young blood transfusion**.

The person who is most actively working towards building this technology is **ELON MUSK**. Apart from **TESLA** and **SpaceX**, Elon Musk is working on a new project named **NEURALINK**. It is a technology which when planted inside a human brain, can fix all its problems that were once considered to be unfixable. It will also enhance the functioning of the human brain. But then what will be the role of neurosurgeons and psychiatrists? Their jobs would be completely stolen by this technology.

Likewise, there are several other jobs for which in future robots might replace the human species. For example, for computational, repetitive, and mechanical work, robots can be considered more reliable than humans due to better efficiency and accuracy. From ancient times to now, we have witnessed many changes like— earlier people used to write whole books on their own, but now we have printers, earlier people used to do all household chores themselves, but today we have several machines for that like a vacuum cleaner and washing machines, etc.

The World Bank said that the global economy had seen **14 global recessions** since 1870: in the years 1876, 1885, 1893, 1908, 1914, 1917-1920, 1930-1932,

1938, 1945-1946, 1975, 1982, 1991, 2009, and 2020. Don't be so surprised if you witness the same in the upcoming times. This time the reason for this economic instability might be technology.

So the question arises what needs to be done? When we say humans might lose some jobs, we also have to see that in upcoming times more jobs would also be created. Positions that no one ever thought would be there. So, let's look at some **AI skills** that can be so beneficial to us, like **Programming languages:** C++, Java, Python, JavaScript, Cyber Security, Data Engineering, Exploratory Data Analysis, etc. These are some basic and necessarily important skills required for any person interested in AI. There is no limit to technology.

When we come out of our comfort zones and explore new things, we get new lessons. The only thing we have to do is to keep ourselves updated and learn as much as we can.

As so well said by the late Sushant Singh Rajput, *"the more you learn, the easier learning becomes."* Try to learn every new possible skill from technology to accounting, medical to art, then utilize your skill in the best possible aspect. In a nutshell, we can say that the more advanced the world will become, the more updated we have to be. Time waits for none, so if we don't walk along with it, it will leave us far behind. So start learning from today and never stop doing it.

- Mahak Arora

VIRTUAL REALITY

Virtual reality is a relatively new technology that was introduced a few decades ago and has quickly risen to prominence in the technological world. It employs a computer-generated artificial world that closely resembles the actual world. It is now used in various sectors, including architecture, medicine, the military & aviation as well as receiving quick notoriety in the video game industry.

At the time of construction of first flight simulator for pilot training in the 1930s, the concept of virtual reality was born. This was done in order to prepare them for real-world flight before they could pilot a fighter airplane. In 1965, an American named Ivan Sutherland suggested the notion of constructing a portable virtual environment using two small television screens, one for each eye.

His technology succeeded, but only on a rudimentary level. The pictures were shaky and blurry. The weight of the helmet was a problem too, as it was considered heavy and needed support from the ceiling. However, the concept had a solid foundation but needed to be refined. Scientists worked on this concept until NASA's Michael McGreevy introduced a far improved form of virtual reality in 1985. Finally, gaming programmer Jaron Lanier created a new virtual reality glove in 1986, offering the breakthrough. As a result, it has progressed to the current state that we see today.

Instead of being very close to the real world, the virtual world is unable to replace the emotions experienced in the real world.

For instance, nowadays, virtual reality is used in military training as well. A soldier knows that he is safe while training through the technology. The fear of losing lives can only be felt on the war fields where they know that any moment could be their last moment. Technology cannot make one feel emotions that can be felt while going through real situations.

Now the question arises whether the long-term use of virtual reality is able to bring about permanent changes? Some psychologists claim that constant use of virtual reality can change people's perception of the real world. Especially the children who have developing brains, their thoughts can be easily altered as compared to adults.

Virtual reality is used by approximately 61000 commercial companies all over the world to create variety of products. Now, it is playing a significant role in educational training and is used by 3600 educational institutes globally.

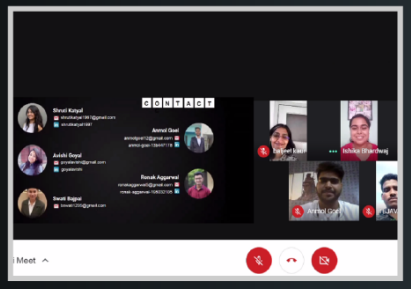
Virtual reality is considered one of the most significant developments of the modern era. When the computer was first developed, it had only a few applications, but many advanced features were developed with time, and the machine is playing an important role in every field. Nowadays, every single school, workplace, industry and household has computers with many advanced features.

Similarly, virtual reality was developed with just a mere idea without any detailed knowledge. But in recent years, it has begun to play an increasingly significant role in every field. Still, experiments are being conducted to make it more advanced. We can even foresee its value in the future as virtual reality allows a person to carry out things or visit places virtually, which might be practically impossible. Like one can travel to the space, molecular structures, deep sea, cities, the sky, internal body or everything else one can imagine.

- Kanika Maheshwari

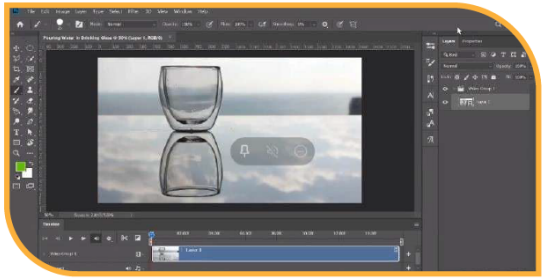
EVENTS DURING 2020-21

01 Alumni Meet



The fiery spirit of curiousity among the students was kindled as Ordinateur organised its first Alumni Meet of the 2020-21 session, on the eve of 27 September 2020.
The session was primarily aimed to help the students to achieve guidance regarding their future career paths and the possible opportunities that awaits them after college.
The alumni of the CS department graced their juniors with their presence and their words of wisdom and experience.
The session started off with a brief introduction of the 5 alumni—Ronak Agarwal, Avishi Goyal, Swati Bajpai, Anmol Goel, Shruti Katyal—who took forward the session with their presentation on possible future career options and opportunities especially prepared for their juniors. They then shared their own experiences with college and career choices, interspersed with patiently satisfying the curious wonderings of their juniors.
The session was concluded by the parting words from the Convener, Dr. Baljeet Kaur.

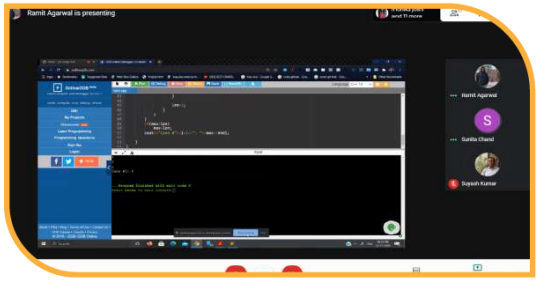
02 Workshop on Infographics and Cinematography



Ordinateur successfully organized a two-day workshop on Infographics and Cinematography using Adobe Illustrator and Adobe Photoshop CC .Day 1 was kick- started with a brief introduction as to how will the event go about. From there on, Mr. Anuj Kumar took over as the instructor on Adobe Illustrator and began his illustration on infographics, when and how can they be used and alongside guiding the participants through each and every tool that might come into play.
On day 2, Mr. Anuj made everyone aware of how the two softwares can be used in tandem. The participants were then briefed with Adobe Photoshop CC and its tools. Other than making GIFs, basic cinematography aspects were also taught. To sum it up, the participants had a free-wheeling conversation with Mr. Anuj.
At the end of the day, everyone had their carts full of knowledge of the kind with which they can certainly do something creative in their future.

03 Tech Trickery

Ordinateur conducted Tech Trickery, an inter-college coding event on 22nd November, 2020. A prosperous and healthy participation of over 300 participants was obtained from various colleges as the participants showed their mettle in



the field of technology.
The competition was composed in 3 rounds. In the first round named Tech It Easy, the participants were required to attempt a quiz which demanded basic computing knowledge. In the second round i.e Mend Your Code, the participants were provided with some erroneous codes and were required to debug them. The third and final round, Tic-Tac-Code required participants to code the solution to a problem statement and present the same to the jury, which comprised the professors of the Department, Mr. Suyash Kumar and Ms. Sunita Chand. The winners Rudraksh Aggarwal, Ramit Agarwal and Ankitesh Kumar were awarded cash prizes and goodies.
The event was successful in its effort to involve the tech geeks and enliven their coding interests.

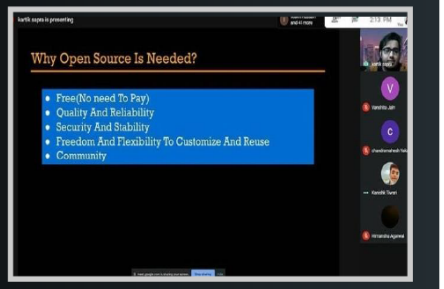
04 TechXplore

Ordinateur successfully organised TechXplore, an inter-college tech article-writing competition aimed to bring out the research and writing acumen of the participating students.The event was successful in its effort to involve the tech geeks and enliven their coding interests.
The articles were recieved through the submissions on Google forms and were all very well articulated and informative. The number of responses was satisfactory and the event panned out as planned.
Md. Saquib Sabri from Hansraj College secured first position, Suyash Saxena from Deen Dayal Upadhyaya College bagged the second position and Sarthak Prakash from Hansraj College stood third.
The winners were appraised with digital certificates for their endeavours. Furthermore, 2 of the best articles out of the received entries are featured in this edition.

05 Infusion, Official Freshers Party

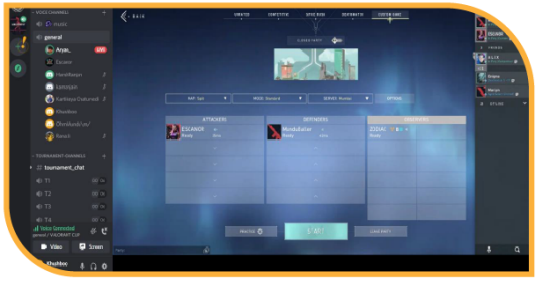
Ordinateur, the Computer Science Society of Hansraj College organized the most awaited freshers party- INFUSION, on 23rd January, 2021. This cultural evening aimed at welcoming the freshers to their new phase of life with positivity and love and making unbreakable bonds for the fresher students with their friends and seniors.
The evening started off with a virtual tour of Hansraj College, wherein students were introduced to the prestigious institution that they had become a part of. Following that the students was a brief introduction of the Computer Science Department and its working. The students were introduced to our esteemed faculty members and the technical staff of the department. Our convenor, Dr. Baljeet Kaur who welcomed the freshers with her words of guidance and wisdom.
The whole event was filled with laughter, joy, dance, videos, crazy games, memorable titles and not to forget, weird dares. The whole audience enjoyed a lot, be it juniors, seniors, or faculty members.
The session concluded with the giveaways of special titles of the evening, i.e. Mr. and Miss Freshers, Performers of the Day, etc. Surely, the Department could not afford to let our freshers miss the college fun due to the CORONA-CATION. The freshers thanked their seniors for the fun filled event and expressed appreciation towards the department.

06 Webinar on Open Source Trends



A webinar on OPEN SOURCE TRENDS was organized by the department. Students, around 100 in number, from different varsities attended the session. Mr. Kartik Sapra, an open-source enthusiast, was the speaker. He started by explaining what open source exactly is, gave several examples and also shared some of his works with the participants.
Next, he laid down the pros of open source and informed about the prerequisites which the students should take into consideration.
Some of his key tips include— studying source-code of a website and trying to grasp it by self; one needs to be ever-inquisitive and shouldn't hesitate to contact developers in case of any doubts.
The session was interactive throughout with the students throwing bunches of questions and the speaker answering them all in the best possible manner.
In total, it was a profitable experience for everybody for they gained knowledge which was majorly new to them.

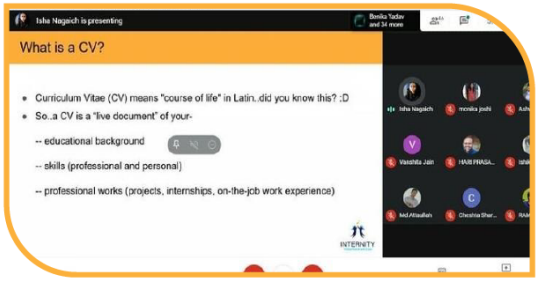
07 Valorant Cup



The department successfully organised Valorant cup, a gaming event based on the renowned pc game Valorant.
It was a two-day event held on 13th & 14th February 2021.
The event panned out over 4 rounds: Elimination round, quarter final round, semi-final round, and final round.
A healthy and enthusiastic response was received and a thrilling competition was witnessed, with over 80 students from colleges all over India participating in the event.
The final match was also streamed on the official Facebook handle of Ordinateur.
Team T5 from Cluster Innovation Centre, DU stood first and bagged a handsome cash prize of INR 5000 in the competition. It was a spectacular display of participants' valour and competitive spirit.

08 Workshop on CV Building

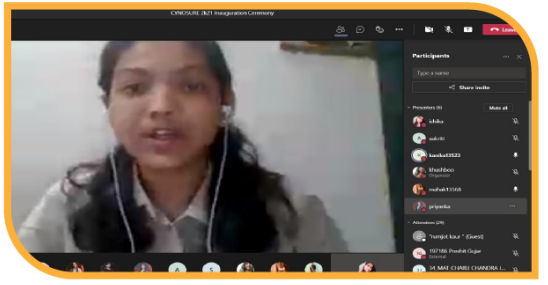
Ordinateur successfully conducted a webinar on CV building and securing internships by Ms. Isha Nagaich. Over a hundred students from different colleges turned up for the session. Ms. Isha, currently the Category Manager at Jumbotail, had reasonable experience in helping people with their CVs. She broke the ice by briefng the participants about what a CV is and then went on to differentiate between a CV and a Resumè. Further, with the help of a sample CV, she offered a structure-elaboration plus the dos-and-don'ts of a CV.



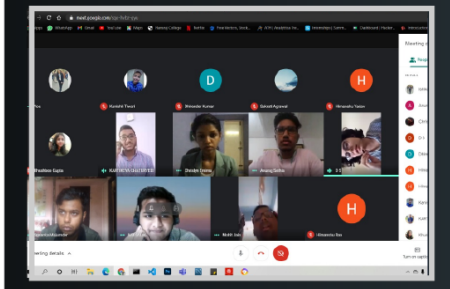
She then talked about securing internships, told them to only secure the ones which are somehow relevant to their career and advised mentioning a handful number of internships in the CV.
And just before the webinar's end, a Q&A session was held where she fully dedicated herself to query-addressal. In all normality, many doubts popped-up and thankfully all of them were candidly answered.

09 Cynosure

The Computer Science Society of Hansraj College organized its two-day Annual Technical Fest- Cynosure 2021, on 3rd and 4th April.
The first ever virtual fest Cynosure, comprised of various technical and non-technical events spread over the two days, and was a thrilling experience for all the tech-enthusiasts.
Cynosure began with the inauguration ceremony on 3rd April, held virtually via Microsoft Teams. Dr. Baljeet Kaur, Convenor, Ordinateur, congratulated the students for conducting such a mega event virtually despite the challenges, and encouraged the participants for a healthy participation. Ms. Aarti Goel, Assistant Professor, Computer Science Department, Hansraj College, also congratulated the Cynosure team, and briefed the events to the participants.



The first day executed with a total of four technical events planned and organized at its best of quality. The tech events comprised of Inter-Battle-View, a competitive event to test the technical aptitude and communication skills, where several participants competed to secure a virtual pseudo-job; Code-A-Thon, The Coding Contest for the coding fanatics; Quizzards of Tech, The Technical Quiz Competition, where the participants competed to showcase their technical knowledge; Tech Labyrinth, The Tech Treasure Hunt, where the participants paved their way through the virtual labyrinth full of codes and clues. The events gathered a massive participation of over 500 participants from colleges and universities across India.



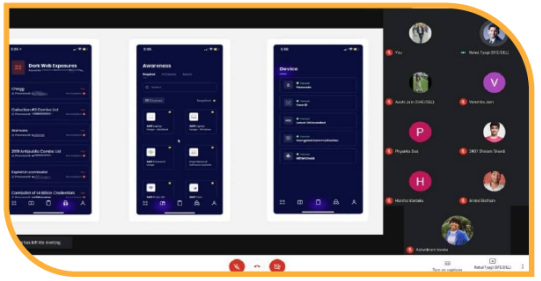
Day two of Cynosure began with the declaration of the winners of Day one events, by the President Khushboo Gupta. This was followed by a talk on Placement Opportunities in IT, by Mr. Avanish Pandey, Lead Community Manager at Internity Foundation. The talk was followed by non-technical events like PUBG tournament, and an MCU trivia- a fun filled trivia based on Marvel Universe which attracted many students with non-technical background.
The winners were encouraged with cash prizes, exciting goodies, certificates and free online courses access, whereas all the

participants were given vouchers whole worth Rs.1.2 lacs. A student from Jadavpur University bagged the first position in the Inter-Battle-View whereas a student from IIT, Allahabad won the coding competition. Ankitesh Kumar from LNM Institute of Technology won the Quiz Competition. Team Puzzlers from SGTB Khalsa College won the Treasure Hunt.

Cynosure concluded with a recreational cultural evening planned for the students of the department. The evening garnered significant attraction from the students, whoenjoyed many outgoing performances likem usic, dances, open mic performances interspersed with fun games and video presentations Cynosure was successful in achieving its aim to allow students from different colleges and departments to interact in an atmosphere of technology. It provided the necessary stimulus for everyone to test their abilities beyond the confineness of classrooms and discover the limits of their potential.

The virtual Cynosure was a grand success due to the combined efforts of all the teachers and members of the society under the capable guidance of convener Dr. Baljeet Kaur.

10 Webinar on Cyber Hygiene in Pandemic



Ordinateur, the Computer Science Society of Hansraj College organized a webinar on 'Cyber Hygiene in Pandemic' by Mr. Rahul Tyagi, Co-Founder, SAFE Security, and Team, on 3rd June, 2021.

Mr. Rahul talked about the anatomy of cyber attacks along with the demonstration of various types of cyber attacks and how to prevent ourselves from them. He demonstrated the cyber attack through phishing emails and spoofing attacks.

Over 40 students of the department attended the webinar. The audience was enlightened by the need for maintaining security and privacy while being online, and their queries were answered by the speaker. The session ended with an insightful note on how to make our privacy invulnerable, and maintain cyber hygiene.

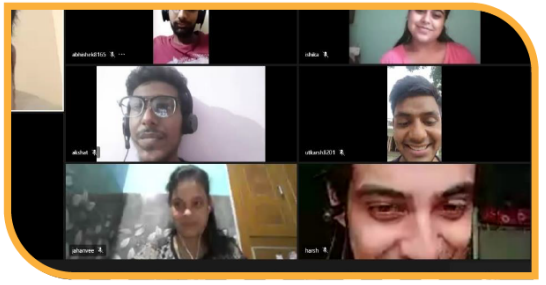
11 Farewell for Batch 2021

The Computer Science Department of Hans Raj College organized an online farewell on 10th July, 2021 for the passing batch of 2021and it was no less fun than the offine farewell. Humungous enthusiasm and emotions flooded the department.

The event started with the welcoming of respected faculty, staff members and the passing batch students. Respected Baljeet ma'am, Harmeet ma'am and TIC Dr. Manoj Agarwal opened the ceremony with their enlightening words.

The seniors acknowledged the presence of the department staff and expressed their gratitude for their incessant support and love.

The evening proceeded with a walk down the memory lane with a video encrypting their college life. The title ceremony along with dedicated songs to every senior was a real heart catching thing for the senior batch. Juniors from first and second year came up with a special dance performance showcasing the college life of the students at Hansraj. The time flew in music and dance performances forged with love for the seniors. Sweet and emotional poetry was also presented. Finally to give a happy ending to the event, the seniors were invited for a fun game which refurbished all the fun memories of the college life, and brought them together to rekindle their bonds built over the years.



12 Alumni Talk on Career Guidance

The Computer Science Department of Hansraj College in collaboration with IQAC, Hansraj College, organized its second Alumni Meet of the session 2020-21, on 18th August, 2021. The session was primarily aimed to enable

students have a closer look into the professional opportunities and various career paths in the field of Computer Science and help them with their career planning.

Four alumni of the Computer Science Department of Hansraj College currently working in big companies were invited to guide the students. The event co-ordinators Ms. Aarti Goel and Ms. Divya Kwatra warmly welcomed the speakers. IQAC Director Dr. Mona Bhatnagar congratulated the department for the initiative undertaken. The alumni- Meghna Agarwal, Mridula Garg, Bushra Aleem and Ajay graced their juniors with their presence and shared their wisdom and experiences having gone through the same phase of making career choices. Further, they patiently answered all the doubts of their juniors. Over 90 students from the department benefitted from the experience-laden discourse. The department faculty was also present and expressed their pride at seeing their ex-students successfully helping their juniors in choosing the best path for their career. The session concluded with the vote of thanks by the event co-ordinator Ms. Aarti Goel.

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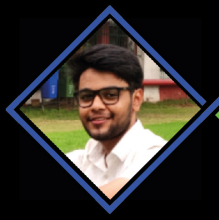

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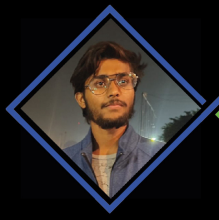

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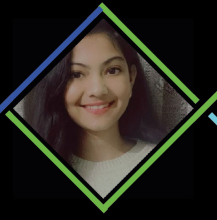

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