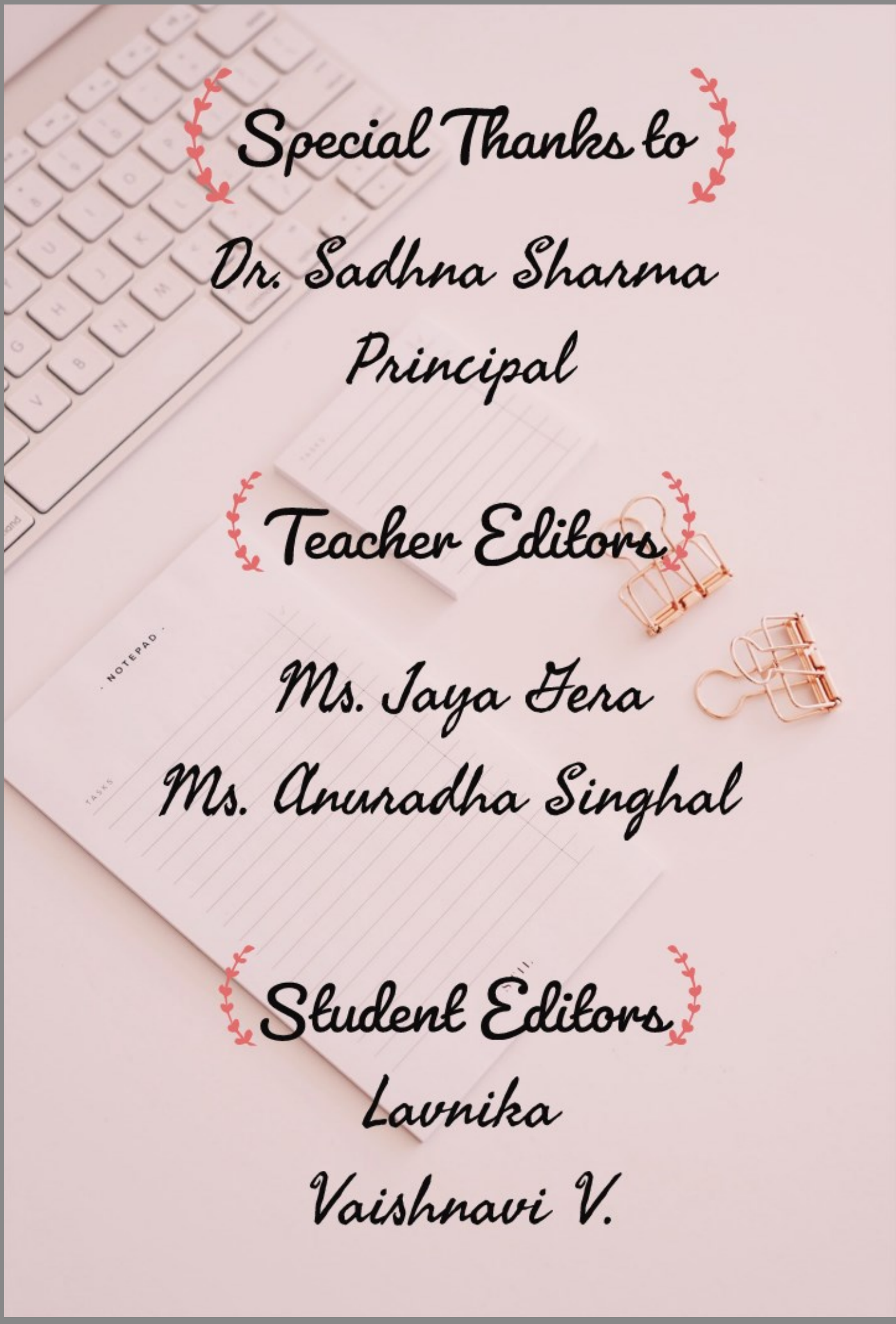
NEWSBYTE

NEWSLETTER 2019

Shyama Prasad Mukherji College for Women, DU
Department of Computer Science



Special Thanks to

Dr. Sadhna Sharma

Principal

Teacher Editors

Ms. Jaya Jera

Ms. Anuradha Singhal

Student Editors

Lavnika

Vaishnavi V.

CONTENTS

Principal's Message

It is a matter of great pride and satisfaction that computer science department is going to release the 3rd edition of its annual newsletter NewsByte.

It is a remarkable step towards holistic development of students as only classroom teaching is not enough for all round development. A newsletter is like mirror which reflects the clear picture of all sorts of activities undertaken by the department. I congratulate and express my deep sense of gratitude to faculty members and students for their efforts to launch it successfully.

Wishing success for future endeavors.

Dr. Sadhna Sharma

Officiating Principal

H.O.D'S Message

Department of Computer Science has travelled a long way in its journey of 20 years, since its establishment in 1999. Department has achieved a number of milestones, but many are yet to be achieved. It had been made possible with the co-operation and efforts of all the members of the department, administrative staff and present and previous principals of the college. I take this opportunity to express my gratitude towards all of them for their guidance, support, encouragement and co-operation. Also, I congratulate everyone for organising the first international conference "**ICACCT**" successfully in March 2018. It is my immense pleasure to share that the proceeding of the conference is accepted by the prestigious publisher "**Springer**" and available online. The proceeding is published in the reputed series "**CCIS**" that is indexed by well-known seven databases including **Scopus** as well as listed in the **UGC** panel of journals.

To achieve these milestones in the past, department had worked as a team. The department could progress because each of the team members contributed towards it. Spirit of contribution encourages one to share, care and promote each other. To achieve new milestones and to face the challenges coming ahead in the future, we need to channelize the energy towards achieving the goal. I hope that every member of the department will continue to work with the same spirit of contribution, will believe in sharing, caring and promoting others as a member of family of computer science. Looking forward for achieving new heights of Success…

With Best of Luck!!!

Ms. Jaya Gera

MENTOR VISION

Mrs. Mansi Sood

In the current digital era, as the reliance on e-content is increasing, so is increasing the vulnerability of getting exposed to fake content and misleading information. People are progressively getting aware of this risk; but still are unequipped to fight this challenge. To alleviate this upcoming threat, we need to understand what all it covers. Is satire on e-blogs, comments or opinions on social networking sites fake information? What is the definition of fake?

Most of the descriptions about term 'fake' talk about intentional disinformation or hoaxes spread via traditional media or online social media. But, the challenge is, intentions are difficult to judge. Fake content is prepared and presented with intent of misleading crowd, to damage the reputation of an organization, entity, person, and/or to gain financially or politically. This also implies that deceptive fake content differs from obvious satire or parody, which intends to amuse the readers than to misguide them.

The International Federation of Library Associations and Institutions (IFLA) have published some guidelines to recognize and differentiate Fake vs Real content. They can be summarized as follows:

- **Consider the source (to understand its mission and purpose)**
- **Read beyond the headline (to understand the whole story)**
- **Check the authors (to see if they are real and credible)**
- **Assess the supporting sources (to ensure they support the claims)**
- **Check the date of publication (to see if the story is relevant and up to date)**
- **Review your own biases (to see if they are affecting your judgement)**
- **Ask experts (to get confirmation from independent people with knowledge).**

Following these guidelines or by just being aware of them, a common reader can verify the veracity of information and can save oneself from falling prey to deceptive intentions, publicity propagandas, and most importantly, from accidently spreading the information themselves.

DATA SCIENCES

Mrs. Reema Thareja

Data Science is an amalgamation of mathematics, programming and statistics which together manage digital data collection. It would therefore not be wrong to say that data science is a multidisciplinary blend of data inference, algorithm development and technology to solve analytically complex problems.

Who are Data Scientists?

Data Scientists are professionals whose main role is to perform research and analyze data to help companies flourish by predicting growth and trends in the market. They provide business managers an insight into a large amount of data.

The core of building data product is the ability to view the huge volumes of data quantitatively. Building analytic models to solve business problems requires knowledge of many inferential techniques, machine learning and linear algebra. Core languages associated with data science include SQL, Python, R, SAS, Java, Scala and Julia to name a few. The demand for data scientists is huge is said to be much higher than the available candidates.

Career Opportunities in Data Sciences

Different types of roles available within the domain of Data Science include:

* Data Scientist: These professionals are exploring data patterns and applying statistical and mathematical models to simplify data.

* **Data Engineer:** They are mostly involved in the non-analytical part of data analysis. Their work is focused on coding, cleaning up data, and implementing suggestions and data solutions that come from data scientists.
* **Business Intelligence Professional:** A BI specialist performs market research of various structured and unstructured data and generates reports to analyze the business trends. These reports are passed the management for analysis. BI professionals specialize in statistical tools.
* **Data Manager:** Data manager or Database Administrators are involved in the structuring of data and management of unstructured data. Their role is to create the infrastructure and database systems for data science teams. They also review data for inconsistencies and conduct maintenance of data.
* **Data Analyst:** Data analysts, analyze large amounts of data, specifically for use by businesses. They work with SQL databases, Excel, Tableau and other software to analyze a variety of data including website traffic, sales figures, operational costs, etc. They also create reports to be used for strategic decision making.

How is a data scientist different from a Data Analyst?

Data insight means mining data to provide advice to an executive to make a smarter business decision. In contrast, a data product is technical functionality that encapsulates an algorithm, and is designed to integrate directly into core applications.

Data scientists play a central role in developing data product. This involves building out algorithms, as well as testing, refinement, and technical deployment into production systems.

In this sense, data scientists serve as technical developers, building assets that can be leveraged at wide scale.

Data Scientists have a good command in math, technology, and business acumen. They work at the raw database level to derive insights and build data product. Data Analysts, on the other hand, interact with data at both the database level and the summarized report level.

Data Scientist Education Requirements

The most preferred way to become a data scientist is to earn a college degree in this field. Companies usually prefer B.Tech and B.Sc.(Hons.) Computer Science degrees. The content covered in these courses give one the necessary skills to process and analyze a large and complex data set. Subjects like statistics, linear algebra, computers, machine learning, and programming in Python/R are taught as a part of the curriculum.

Note that graduates from Mathematics and Statistics honours are also good candidates for becoming a data scientist.

DEEP LEARNING

Mrs. Seema Rani

Deep Learning (DL) is one of the emerging subfield of machine learning. Also known as deep structured learning or hierarchical learning, it is inspired by the structure and function of human brain called Artificial Neural Network (ANN). The series of layers between input and output do feature identification and processing in each stage, just like our brain. Machine learning has certain limitations:

- It is not much more useful for high dimensional data means where there are large number of inputs and outputs.
- Machine learning does not effectively solve some artificial intelligence problems like natural language processing, computer vision, speech recognition etc.
- Feature extraction is one of the difficult tasks in traditional machine learning.

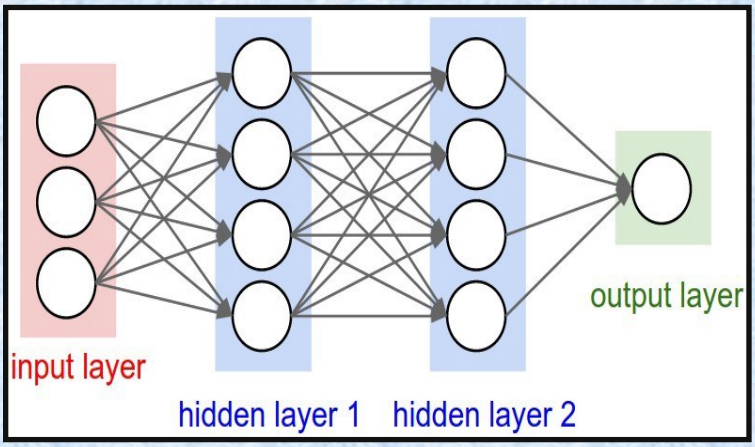
The fundamental idea behind DL is to develop learning algorithms that mimic human brain.

DL algorithms try to work in multiple levels, corresponding to different levels of abstraction. It typically uses artificial neural networks. DL is useful in both supervised and unsupervised learning. Deep Neural Network (DNN) is generally explained in two ways, universal approximation theorem or probabilistic inference. The potential of feed-forward neural networks associated with a single hidden layer of finite size to approximate continuous function is covered by universal approximation theorem whereas the probabilistic interpretation contains features inference, optimization concepts of training and testing, and it considers the activation nonlinearity as a cumulative distribution function. Several models of DL are Recurrent Neural Network (RNN), Auto-encoders (AE), Restricted Boltzmann Machines (RBM), Convolution Neural Networks, Generative Adversarial Networks (GAN), Deep Belief Network (DBN), Deep Boltzmann Machines (DBM), Deep Stacking Networks (DSN) etc.

HOW DOES IT WORK?

DL algorithms are actually Deep architectures of consecutive layers. Each layer applies a nonlinear transformation on its input and provides a

description in form of output. The goal is to learn a complex and abstract representation of the data in a hierarchical manner by passing the data through multiple transformation layers. The data is fed into the first layer, accordingly the output each layer is provided as input to its next layer. DL implicates to feed a lot of data to a computer system. This data is fed through neural networks, as is the case in machine learning. Logical constructions of these networks make a series of binary true/false questions, or find a numerical value, of every bit of data which pass through them, and classify it according to the answers received. Normally two types of operations are performed when you train a DL model, they are: forward pass and backward pass.



In forward pass, input is passed through the neural network and after processing the input, an output is generated. Whereas in backward pass, we update the weights of neural network on the basis of error we get in forward pass.

THREE CLASSES OF DEEP LEARNING NETWORKS

Most of the works in DL areas are broadly categorize into three major parts:

1. Deep networks for unsupervised or generative learning- DL is effectively used for unsupervised learning which assign to no use of task specific supervision information.
   Several numbers of deep networks associated with unsupervised learning can be used to generate relevant samples by sampling from the networks.
2. Deep networks for supervised learning- Supervised learning is emerged with deep networks in signal and information processing which are shallow architectures that contains HMMs, and conditional random fields (CRFs). Different versions of deep-structured CRFs are successfully applied in phone recognition, spoken language identification and natural language. Processing, a new feature of DL architecture is emerged, called Deep Stacking Network (DSN), together with the association of its tensor variant and its kernel version.
3. Hybrid deep networks– Hybrid deep network is amalgam of deep architecture which comprises for use of both generative and discriminative model. Different researchers have applied hybrid deep networks for some terminology,learning effective features and sentiments.

Unveiling the hidden

Mrs. Anuradha Singhal

"Beauty is hidden in everything, just learn how to observe" by Ritu Ghatourey. In contemporaneous time where cyber scientists dug their brains day and night round the clock to decode masked information traveling around the web, new techniques are coming up to reduce time and effort to decipher hidden information. With digital crime increasing at its pace, scientists are trying to develop optimized techniques to unveil the hidden data on web.

Concealing secret data in regular message such that presence of hidden data is known only to intend recipients is known as steganography. Process leaves no trace of existence of hidden message for naive eyes. For example Jack and John two suspected hackers are exchanging many mails among them. Exchange is in form of images but those images are carrying data which only two of them can comprehend and anyone eavesdropping is actually oblivious hidden communication is happening through media. Camouflaged communication can occur through any medium such as text, images, audio, video etc. Plain object with no hidden messages is known as cover object and those carrying embedded information are known as stego objects. Concealed data is known as payload.

Art of detecting presence of hidden message in any ordinary object is known as steganalysis. Identifying stego object irrespective of embedding steganographic algorithm used is known as blind steganalysis. Steganalysis can be further classified as Active and Passive steganalysis based on amount of information that can be extracted by algorithm.

Where Passive steganalysis only focuses on detection of payload or identifying steganography algorithm used, In contrast, active steganalysis targets to estimate either or all of the following: 1) implanted secret message length; 2) regions where message can be hidden ; 3) message embedding key used (if any); 4) retrieval of the embedded message; 5) parameters of the embedding algorithm. Steganalysis algorithms are widely used in practical fields like forensic tools, military operations, law enforcement etc.

Process of blind steganalysis can be summarized in three steps:-

1. Feature Extraction from input data
2. Feeding above extracted features to machine algorithms for learning - Training phase
3. Classification or prediction based on learning developed in above step - Testing phase

With advancement of artificial learning, deep learning techniques have evolved helping researchers make intelligent decisions. Tagging group of samples to particular value is known as labelled data. Deep learning subset of machine learning algorithms has hidden layer architecture which works with labelled data and huge computing power. These techniques helps to execute end to end learning where database of stego objects along with labelled data is fed as input to architecture of hidden layers and function of classification or prediction is left to network to perform automatically. With current methods of cloud computing and parallel architecture of GPU'S computational time is substantially reduced. Features are learnt incrementally providing more precise results when dealing with huge amount of data. Thus with deep learning three step process is reduced to two steps. Instead of feature extraction from objects and then forming feature vector for learning relationships, database of prepared (pre-processed) objects along with labelled data is directly fed to deep neural networks to automatically learn features.

FROM THE FRESHER'S DESK

WHAT THE BEGINNERS THINK OF THIS NEW CHAPTER IN LIFE

TARUSHI SAXENA TALKS TO NEWBIES

PRIYANKA, ANJALI, RAVINA, KIRTI, NEHA, SAKSHI, JYOTI AND VAISHNAVI

What was your experience of shifting from school to college?

Having teachers and seniors by your side is the best thing that can happen to a fresher. Our whole department is very supportive and they encourage and motivate us. The atmosphere is healthy, vibrant and studious too. The first priority of our college is education which I think is one of the best thing that can happen. Teachers are dedicated and cooperative.

What was your expectations for college when you were in school and how many of them fulfilled?

Firstly, all the freshers were very excited for their welcome party. Getting a freshers party is the most amazing start for the new phase of our life and we thank our seniors and our teachers for their devotion and hard-work which made it a huge success.

There are no boundaries of time which is a new thing since every student in school is made to come and leave the premises at fixed time. But the class schedule along with attendance is very hectic. Our expectations of having after college fun is completely destroyed since we have a tight schedule

What do you think is the most positive thing about college?

There are many courses from varying streams: Science, Commerce and Arts, which gives us a broad choice of options.

Also, college has many societies that help in enhancing and boosting our skills.

Other than that there are a bulk of books in library which help us to understand our difficult subjects.

Question banks are also available in the library which help us in understanding the criteria of question and distribution of marks.

As a non-cs background student , how much difficulties have you faced in competing with the cs background students and how your issues have been solved ?

As non-CS background students, we are comfortable with this subject and yes, sometimes we are not able to understand some topics. But, students are so helpful. When we ask them for help they are always there.

Also, the fact that we are in college gives us enough enthusiasm to solve our problems ourselves: by self study, library books or video tutorials.

What were your perceptions of a girls college and how much are they in sync with the reality here?

Stereotypically, a bunch of girls is associated with all talk, and excessive display of emotions. The reality is definitely different. Having a bunch of females around us is enough testimony that the entire atmosphere becomes focused and fun, at its own appropriate time.

Attending a women's college helps you gain strength in all aspects because you learn to value yourself as a unique individual that is capable of accomplishing all goals one sets.

Women's colleges also establishes high expectations, encouraging students to flourish and to reach their highest potential – not cloisters, but dynamic educational institutions that prepare their students for the many roles they will assume in life, that challenge them to become whatever they want to become, along with the offer of an excellent academic education.

Academically, professionally and personally, the advantages of women's colleges are hard to match. A women's college graduate enters the workforce with the confidence and self-esteem that will carry her forward – no matter the circumstances or challenges.

We really look forward towards the coming academic years!


MIND
SPARK

IF CYBORGS WERE REAL

Vidushi Singla

For all those people who don't know what a cyborg is, the Wikipedia reads: "A cyborg, short for "cybernetic organism", is a being with both organic and bio mechatronic body parts".

As the time passes by its very velocity, the researches in the field of science and robotics are taking its pace and so is the interest of humans in them. This interest has grown to such an extent that they themselves want to turn into bots. You might think it sounds kind of imaginary or DC oriented, but believe me it's not.

Cyborg implantations are slowly becoming common to replace broken body part, but that is not all, Activist and artist Neil Harbisson was born without the ability to see color. In 2004, he mounted an electronic antenna to the lower back of his skull that turns frequencies of light into vibrations his brain interprets as sound, allowing him to "hear color." These frequencies are even able to go beyond the visual spectrum, allowing him to "hear" invisible frequencies such as infrared and ultraviolet. You see how a little meddling of technology with our body can turn into something so advanced and helpful. But this is not so advanced yet.

Advanced would be the robotics implementation in our brain that will control us, the science which will turn us into more bots and less human, and whose reality seems not so far.

Wouldn't it be weird seeing the original fully human oriented society turned into a machine dominated one? But doesn't it sound obvious, when we humans, being intellectual people, are so keen on becoming their slaves ourselves?

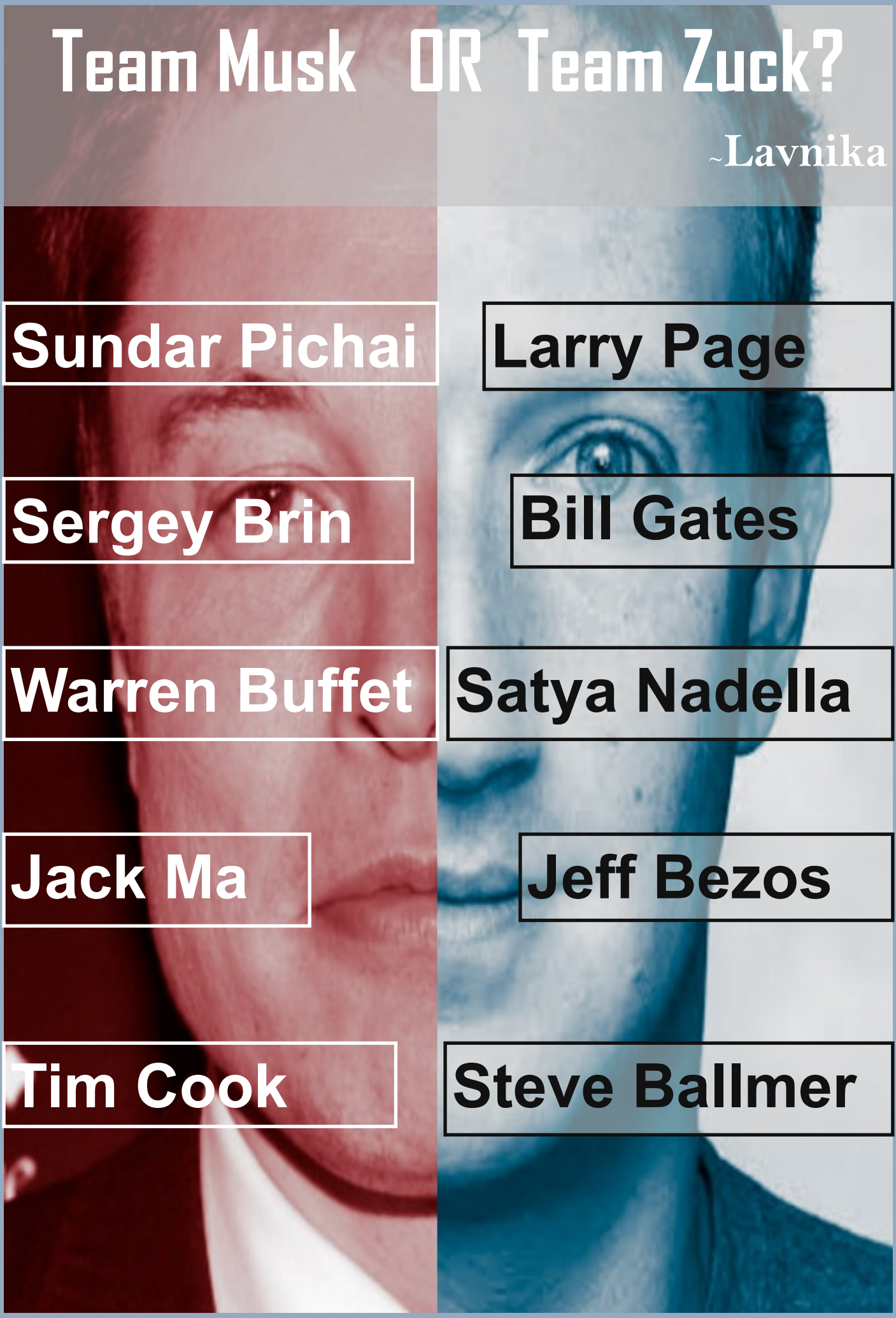
Is There Really a Thing Such as Internet Addiction?

Megha Mishra

How much do we use the internet? We use it daily for almost 4 to 5 hours. But maybe it's time to really consider the hours we spend online. It might be adding up to a lot of unhealthy behaviours that psychologists have termed as Internet Addiction Disorder.

But officially according to medical professionals there is no such thing called Internet Addiction Disorder but there is actually something called Internet Gaming Disorder. For some people who play online games, certain pathways in their brains are triggered in the same direct and intense way that a drug addict's brain is affected by a particular substance.

There are three distinct types of Internet addiction: excessive gaming, sexual preoccupation, and email/text messaging. All these share crucial similarities with drug addictions: excessive use, withdrawal, tolerance and negative consequence. Basically it starts with overuse, then felling irritable away from the keyboard, then the sufferer starts needing more and better technology and access and finally leads to social isolation which is very common in today's lifestyle. Almost all those people who are suffering from these symptoms also suffer from one or the other mental disorders and could be depression or anxiety which is a serious issue.


Team Musk OR Team Zuck?
~Lavnika
Sundar Pichai
Larry Page
Sergey Brin
Bill Gates
Warren Buffet
Satya Nadella
Jack Ma
Jeff Bezos
Tim Cook
Steve Ballmer

The modern definition of artificial intelligence is "the study and design of intelligent agents" where an intelligent agent is a system that perceives its environment and takes actions which maximizes its chances of success .

AI research uses tools and insights from many fields, including computer science, psychology, philosophy, neuroscience, cognitive science, linguistics, operations research, economics, control theory, probability, optimization and logic.

AI research also overlaps with tasks such as robotics, control systems, scheduling, data mining, logistics, speech recognition, facial recognition and many others.

It applies biologically inspired concepts such as populations, mutation and survival of the fittest to generate increasingly better solutions to the problem. These methods most notably divide into evolutionary algorithms (e.g., genetic algorithms) and swarm intelligence (e.g., ant algorithms). With hybrid intelligent systems, attempts are made to combine these two groups. Expert inference rules can be generated through neural network or production rules from statistical learning such as in ACT-R or CLARION.

It is thought that the human brain uses multiple techniques to both formulate and cross-check results.

Thus, systems integration is seen as promising and perhaps necessary for true AI, especially the integration of symbolic and connectionist models.

However, as the name suggests, AI: means giving these “intelligent agents” independent ability to analyze and perform. Is it safe? While Team Mark believes, it to be absolutely controllable, Team Musk differs in opinion. Given, **this information, would you believe that AI is a potential threat to the human race or you believe it will always remain a human slave? i.e. ARE YOU TEAM MUSK OR TEAM ZUCK?**

What is **Blockchain** ?

A block chain is a digitalized , decentralized , public ledger of all crypto currency transaction, growing as completed blocks are completed and recorded it in a chronological order. It allows market participants to keep track of digital currency transactions without central record keeping. Each node gets a copy of the blockchain which is downloaded automatically.

Blockchain was invented by Satoshi Nakamoto in 2018 to serve as the public transactions leisure if the crypto currency bit coins. The invention of the blockchain for Bitcoin for the first digital currency to solve the Double spending problem without the need of the trusted authority or central server

Structure of blockchain

The blockchain database is managed automatically using a peer-to-peer network and Distributed Time-stamping server that results in the robust workflow.

I. Blocks

Blocks hold batches of valid transactions that are Hashed and encoded in the Merkle tree. Each block includes the cryptographic hash of the prior block in the blockchain, linking the two. Here these linked blocks forms a chain.

II. Block time

Block time is the average time it takes for the network to generate oneextra block in the blockchain. In crypto currency , block time is practically when the transactions takes place.

III. Decentralization

By sending data across peer to peer network decentralization of data takes place in blockchain.

IV. Consortium blockchains

Consortium blockchains is said to be semi-decentralized. It is too permissioned but instead of a single organization controlling it. A number of companies might each operate a node on such a network.

Types of Blockchains

I. **Public blockchains**

Public blockchain has absolutely no access restrictions. Anyone with internet connection can send transactions to it as well as become a validator. Some of the most known public blockchains are Bitcoin and Ethereum.

II. **Private blockchains**

Private blockchain is permissioned. One cannot join it unless invited by the network administrators. So in private blockchain participants and validator access is restricted.

III. **Consortium blockchains**

Consortium blockchains is said to be semi-decentralized. It is too permissioned but instead of a single organization controlling it. A number of companies might each operate a node on such a network.

Uses of Blockchain

Blockchain technology can be integerated into multiple areas. The primary use of blockchain today is as a distributed ledge for cryptocurrencies.

- **Cryptocurrencies:** Cryptocurrencies use blockchain technology to record transactions for example. The Bitcoin network and ethereum network are blockchain based.

- **Smart contracts :** Blockchain based smart contracts are proposed contracts that could be partially or fully executed or enforced without human transaction.

- **Banks:** Major portions of the financial industry are implementing distributed ledges for use in banking and according to a September 2016 IBM study , this is occurring faster than expected.

What impact could this technology have?

As per my study on blockchain technology I've found that this technology have a great positive impact on digital currency. And there is huge numbers of researchers all over the world who is celebrating this topic

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DNA FINGERPRINTING

~VANDANA YADAV

DNA fingerprinting is not taking someone's fingerprint. It is cutting off a DNA strand and separating them by size. Almost every cell in our body contains our DNA. On average about 99% of DNA between two humans is same. The remaining 1% is what makes us unique (except the case of monozygotic twins). Now scientists have developed a technique to identify and compare these differences as variable no. of repeated sequences of DNA. And the technique is DNA fingerprinting. DNA fingerprinting is a technique of determining nucleotides sequence of certain areas of DNA which are unique to each individual. It was invented in 1984 by Sir Allec Jeffrey. The basis of DNA fingerprinting is polymorphism.

Polymorphism is the variation among individuals at genetic level or we can say that no two humans have genome with same DNA nucleotides sequences except identical twins.

There are many steps involved in DNA fingerprinting like

⇒ Extraction of DNA.
⇒ Restriction digestion of DNA with the help of restriction endonuclease enzymes.
⇒ Separation of DNA fragments by gel electrophoresis.
⇒ Transfer of DNA fragments from gel to nylon membrane.
⇒ Incubation of radioactive DNA pattern to X-ray film by direct exposure.

Now the developed resultant visible pattern is DNA fingerprint. There are many applications of DNA fingerprinting in real world such as identifying individuality, paternity-maternity disputes, resolving property disputes, forensic science, identification of genetic diversity, evolution and phylogeny, conserving wildlife, fool identification, medical investigation and so on.

Campus Chronicles

The college, every academic year bestows the title of "Outstanding Student of the Year" on a student who has been a true achiever in her learning life, not only in terms of academic excellence but in overall accomplished feats as well. This year too, a student has from Dept. of Computer Sc. has bagged this title:

Drishti Kapoor

How has your college journey been so far?

Quite frankly, it has been a roller-coaster ride. From managing academics to being involved in two societies and let's not forget having fun, it's been hectic but definitely worth it. College life is everything what I thought it'd be like - Fun mixed with learning. I've made friends, lost friends. Scored very well and even scored less. But I've truly learnt so much in this college. My teachers have constantly helped and encouraged me and I'm grateful for that.

What were the things that made you different to give you this winning streak?

I participated a lot in extracurriculars and I didn't let academics be my only focus. Though I didn't top but I believe understanding the concept is more important than scoring the highest. I also involved myself in a lot of volunteer work, extra courses, internships and in college societies. That definitely made a difference in my personality and on paper.

After winning this title, is there something you were reluctant to do before, but are now willing to give it a shot?

There's no particular thing that I'm looking forward to that I wasn't before but winning this title has definitely given me a major boost in confidence. My goals haven't changed as such but I've received a certain clarity and happiness on being awarded this title. I'm much more sure of myself in pursuing goals now.

An advice for juniors?

Don't take college too hard on yourself. Your health is very important and that should always come first. Also, go out and have fun. Participate in events, go on stage, get rid of your inhibitions. Study but don't forget to live college life. It's all a integral part of your growth and vital in development of your personality.

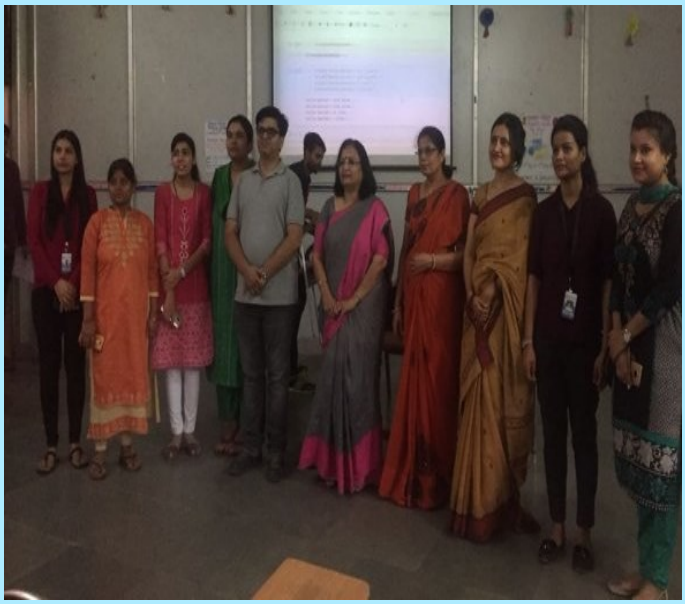
Foundation Day Celebrations

On 31st August,2018, SPMC celebrated its 50th year anniversary. The former President of India, Hon'ble Shri. Pranab Mukherjee joined in on this occasion and shared his experience and wisdom through his words. This event was successful due to the efforts of all the NSS volunteers and the teachers. He motivated every student to work hard towards not only making a successful career, but also towards fulfilling their responsibilities towards the country as a citizen. Mr. Mukherjee was also appreciative of the college's efforts towards its students' development.

BON VOYAGE '18

The CS department of SPMC organized a farewell for the 3rd year students The 1st and 2nd year students organized this beautiful gala on 28th April 2018. The students and teachers gave their best effort to make this event memorable for the seniors. The ramp walk by the 3rd year students set the stage on fire. Anchal Dua became the Miss Farewell. With a heavy heart, we said goodbye and best wishes to our seniors.

PYTHON WORKSHOP



@40 hours Python workshop took place in SPMC for the students from 2-13th July 2018. This workshop was conducted by Antrix Academy of Data Sciences and was attended by students from various colleges. The main motive of this workshop was to provide students basic knowledge of python and data analytics. It proved to be a good learning experience for the students.

SANGTARAASH '18

The annual technical fest of the Department of Computer Science, SangTaraash'18 was held on 26th March 2018. The event was attended by students of various departments of the college as well as students from other colleges of DU.

The events included were:

* Tech Charades- Explaining tech-terms to random people, but without speaking a word!
* Code O Mania– Competing with many who share a passion for coding to be the title winner.
* Puzzler– Brain-storming to solve the given puzzles.
* Bug Fixing– Putting your debugging and scrutiny to test.
* Ad Mad– How'd one sell a not-so-known software to the masses?
* Turn Coat– Turning a given code to achieve a different purpose by making minimum changes.

The fest was enjoyable while being a good opportunity for them to showcase their talent. The one day event concluded with a prize distribution ceremony.

ENIGMA '18

The CS department of SPMC organized Fresher'18 on 21st August 2018 with the theme of Masqerade. The 2nd and 3rd year students welcomed the juniors with joy and fun. The otherwise jejune girls stunned their teachers and seniors with their fantastical ramp– walk and talents.

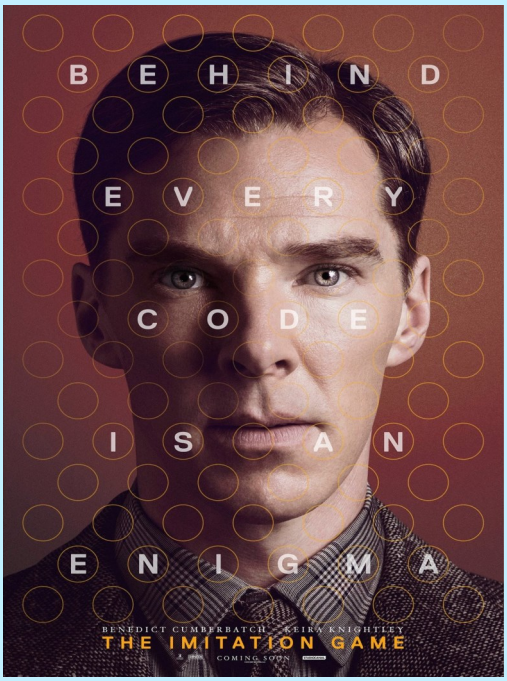
Later, all the girls let their hair loose, and shook a leg with the charming freshers.

CLOUD LITERACY DAY

The CS Department of organized a 1 day workshop on Cloud Computing on 30th October 2018, as a part of the Cloud Literacy Day celebrations by Amazon Web Services. The online workshop proved very useful for the students as a first step towards knowing about cloud computing, one of the buzz topics of the computer industry. The workshop was organized by ICT Academy and the students received a Cloud Literacy Inventor badge by AWS on the completion of the workshop.

MOVIE SCREENING

@movie screening of the movie 'Imitation Game' was organized on 10th October 2018 for the students of the CS Department. It was aimed towards stimulating a creative streak in students for their contribution towards computer science.



ICACCT-2018

9th MARCH

International Conference on Applications of Computing and Communication Technologies

University of Delhi, New Delhi

9 March,2018

Dr. Ganesh Deka

Deputy Director of Training, under D. General of Training & Employment, Ministry of Skill Development and Govt of India,

Dr. Omprakash Kaiwartya

North Umbria University, United Kingdom(U.K)

Prof. Abdul Hanan

Head, PCRG, Faculty of Computing,Universiti Teknologi Malaysia

People across globe have understood the immense potential of IT with respect to its contribution in terms of economic growth, efficient governance, citizens' empowerment and in improving quality of human life. The main interest of ICACCT-2018 is to gather international researchers working in the multiple areas of Communication Technologies, Computing, Theoretical Computer Science, Information Technology and its Applications. ICACCT-2018 will be an amalgamation of three different tracks organized in order to cover vast areas of Computer Science and its prominence in real world.


COGITATE
Awaken your inner
computer geek...

TRENCACLOSQUES

Trace a rough algorithm for the given problem sets

- You received a notebook which is called *Death Note*. This notebook has infinite number of pages. You have to write names in this notebook during n consecutive days. During the i-th day you have to write exactly a_i names.You came up with a strategy how you will write names in the notebook. You have calculated that each page of the notebook can contain exactly m names. You will start writing names from the first page. You will write names on the current page as long as the limit on the number of names on this page is not exceeded. If after some day the current page still can hold at least one name, during the next day you will continue writing the names from the current page. How many times will you turn the page during each day from 1 to n.?

- Given 2 nos a and b, find if a can be written as $b^n + b^m$ for n,m being whole nos. Return 1 if possible and 0 if not.

- A building consists of n towers, h floors each, where the towers are labeled from 1 to n, the floors are labeled from 1 to h. There is a passage between any two adjacent towers (two towers i and $i+1$ for all i: $1 \le i \le n-1$) on every floor x, where $a \le x \le b$. It takes exactly one minute to walk between any two adjacent floors of a tower, as well as between any two adjacent towers, provided that there is a

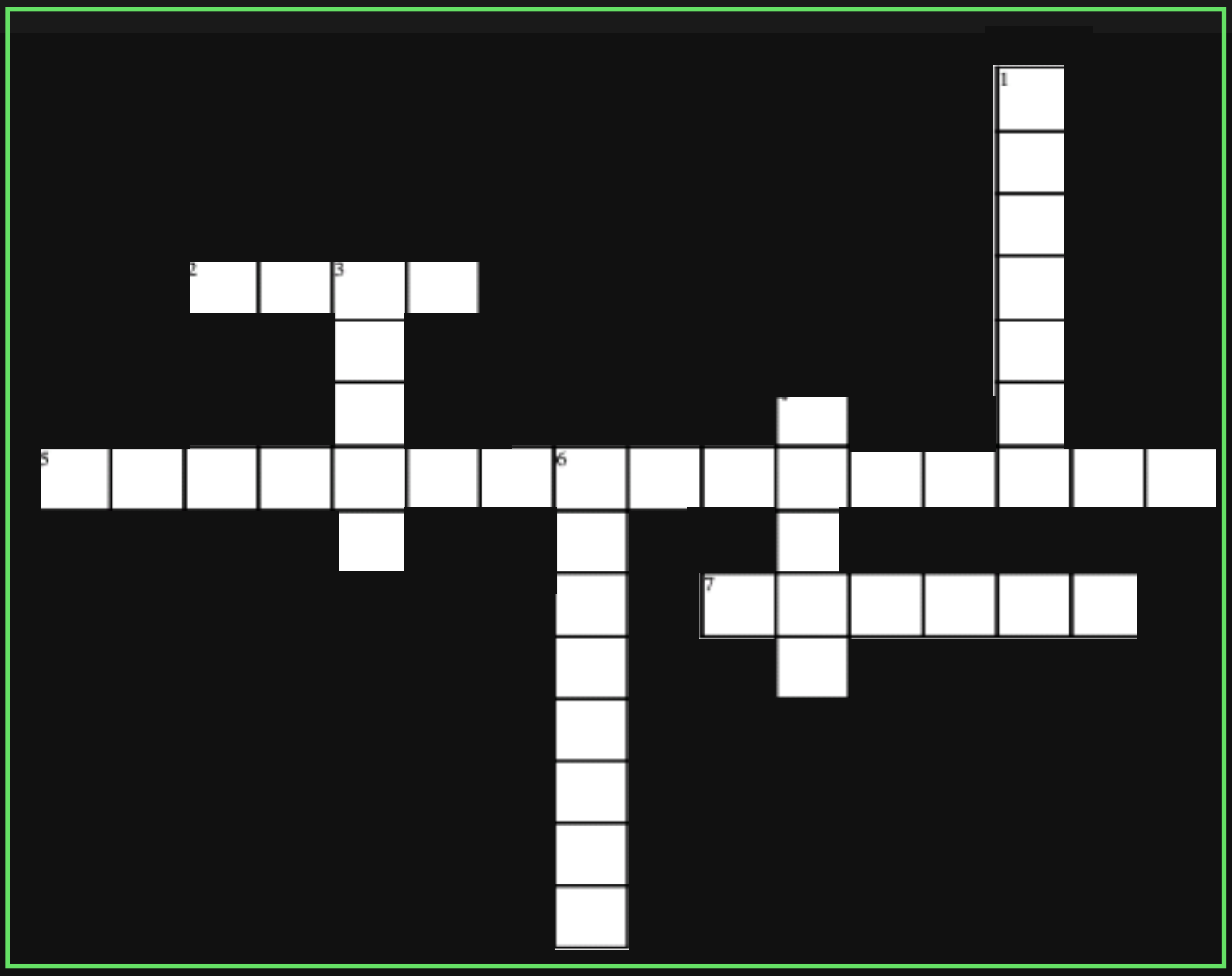
passage on that floor. It is not permitted to leave the building.

You are given a pair of locations $(t_s,f_s),(t_d,f_d)$ where t_s,t_d are tower nos. and f_s,f_d are floor nos. You need to find the minimum time required to start from (t_s,f_s) and reach (t_d,f_d).

- You are given a string s consisting of n lowercase Latin letters. n is even.For each position i($1 \le i \le n1 \le i \le n$) in string s you are required to change the letter on this position either to the previous letter in alphabetic order or to the next one (letters 'a' and 'z' have only one of these options). Letter in every position must be changed exactly once.For example, letter 'p' should be changed either to 'o' or to 'q', letter 'a' should be changed to 'b' and letter 'z' should be changed to 'y'. Your goal is to check if it's possible to make string s a palindrome by applying the aforementioned changes to every position. Print "YES" if string s can be transformed to a palindrome and "NO" otherwise.

Umgca

Fun facts about the tech world



Across

2. Stock market name for Apple inc.

5. Original name for Windows

7. Original idea for Google's name

Down

1. First company to sell watch phone

3. Twitter bird

4. Yet Another Hierarchical Officious Oracle

6. Time magazine's 'Man of the Year' 1982

Grad Intetho

THOSE WHO HAVE BEEN HERE AND DONE FAB.

The Experience

Ayushi Khare

Batch 2013-17

There are a few things in our lives which come across as unexpected turn of events, which work out in a manner one never anticipate them to. These are mostly things one is deeply grateful for, and the Department of Computer Science at SPMC, University of Delhi was one of them.

I, for one, have had quite a kitty to thank for when it comes to the dedicated professors, and the guides I found on the way. Having started off as an off-the-lime-light individual in my first year, who just walked out of her home town into the National Capital for her education, this was quite a switch. One that I am deeply thankful for, of course -the experiences and my resume are both testaments to the fact that I indeed had the good fortune of making the most of it!.Things began with Sangtaraash's organizing team, wherein I, with a team, began working for the 18 online and offline events we planned to up the bar from what it has ever been

One of the milestones was the major project I undertook for my final year, which a research based technical intervention, called e-Rural. The product of the same was a research paper I authored, which also won the Best Paper Award at the National Conference.

Next year I was promoted to a Fest Coordinator, organizing and managing multiple teams and events. I still owe my meticulous way of working on smallest of tasks and my people skills to what I experienced and learnt as part of the months-long preparation which went behind these events.

I was also, at some point, working for Srijan (the cultural festival) and NCACIT (the National Conference organized by the department) as a Marketing Head, apart from organizing or managing the various workshops and seminars .

In a women's college, I learnt appreciating the dedication with which women do what they do. In a department which comprised mostly of women, I heard of only positive stories of accomplishments, and exceptional humility. Ideas were heard, rebellious ones appreciated, and the best ones actually put to use. There was never an air of superiority I worked under, but utmost love and affection, sometimes with raised eyebrows, but always with smiling faces. Of course, I couldn't have asked for better. Needless to say, I walked out of the college with excellent mentors I still turn towards when at times when I need advice, the ones I still visit when I need inspiration, and people for whom I am doing what I am doing.

Among professors who were seamlessly juggling between their lives back home and in the college, I do not recall one incident where I felt unheard amidst all the chaos and calm they find themselves in.

My journey from SPMC to the Young India Fellowship, and now as an individual striving to make a career in Human Rights isn't conventional, to say the least.

Belonging to the only batch which passed out with a Bachelor's in Technology degree from the college, we were coincidentally unique too; a batch which stayed on for four years, and quite memorably so. My batch mates taught me a lot about sincere and passionate friendships too.

But there is solace in knowing that there are guides I can turn towards when need be, that I can always bank upon my old friends, and that, would always be more than enough!

Reminiscence

Manisha Vashisth
Batch: 2015-18

College is the place where we entered as a newbie, least knowledgeable about the rest of the world, conservative and limited to our zone. But Leaving College after 3 years of graduation being as a challenger, and as the most ambitious person, SPM taught me a lot.

In my graduation, I was involved in a number of activities, like event organization, event management, attended few seminars or workshops, I always gave my best. Everyone think that it will boost our resume, but sometimes we end up, disliking what we are doing. But there is more than a resume, point is what we did to embrace our personality. Are we confident enough to face the world outside college? College is the best place to explore yourself, to examine yourself, to see your worst and the best part. And we, as a student of Computer Science Department, we are actually blessed to have such a supporting faculty, who always pushes you, to do your best. When we are stepping inside something, we should be aware of what we are doing and how we are going to make that thing as a valuable part of our journey.

As a part of a software development team or some other projects, with the guidance of amazing faculty of our department, who made me passionate towards my goals, made me realize that what I actually want to do. Focus on your goals, and always try to give your best. These college projects, events, they are just gearing you up for future challenges.

“Don’t aim for success, if you want it, just do what you love and believe in, and it will come naturally.”

A Glance Back

Megha Kharbanda

Batch: 2009-12

During my graduation in B.SC Computer Science (H) I always use to think what next?

Either to go for job or to pursue higher education! Therefore, getting placements from 2 of the reputed companies was a cherry on the cake for me though it was an add on to the dilemma.

Finally , after taking guidance from the professor's I went on to pursue MCA and trust me the concepts which I studied during my graduation helped me a lot. Securing a gold medal in IPU with 95% in post graduation wouldn't have been possible without SPM and the faculty there.

I still remember we were the first batch to successfully organise our techno cultural fest SANGTARAASH, we have not just academically but personally too developed personalities at SPM

I give a lot of credit to all the faculties at SPM to boost up my career and letting me stand where I am today

Grabbing the opportunities coming my way , I was recruited as a Quality Analyst. It'd been almost 4 years here and the exposure is amazing. Going to United States of America , meeting different people from different nationalities working together actually makes you a versatile person which is at the end key to the success in any corporate.

It all happened because the basics or I should say stepping stones regarding the technological concepts and the extra curricular activities led by the professors in SPM was so strong that I faced all the challenges easily which came in my way!

My College Life

Sadhvi Sishodia
Batch 2013-17

Friends, or I should say family girls, residing at different places all over Delhi, daily met at t favoritpoint which was Shyama Prasad Mukherji College. This family of friends and teachers is the most beautiful family of such time. I'm one of this family, and all happy to be the part of the Delhi Shyama Prasad Mukherji College of girls.

It all started in July, 2013, when I got admission in the Bachelor of Technology in Computer Science Course, and I clearly remember how excited I was at that time. College has taught me how to deal with every situations that comes in life because life is unpredictable.

Life at college is the time when we dive deep into the ocean of new beginnings and possibilities. There were lot of moments like fests, parties and farewells which carry sentimental values and are saved in our hearts for our whole life. Today what I am, is because of my college and teachers, which makes me stand still no matter what the situation is. For me my college days are much better explained in the following lines-

The 8:30 lecture to attend was a hurry,
And to not miss the canteen's Rajma Curry,
Having it, vanished all our worry,
Getting assignments complete was a full flurry!
Foyer and Hall 2 were the places we lived,
Sangtaraash fest was to be completely jived.
College Life is the best part of life, one should learn,
The Challenges life has after that, makes every stone unturn!
Teachers can not be replaced by anyone,
They've a special place in our heart's pearl,
How they treat us, is like our home,
Feels the same as a 'Maika' to a girl!
Now, College has changed to Office,
Teachers to our Bosses,
Appreciation is not easy now,
More Hard work only done like how.

Memories

Srishti Aneja

Batch 2011-14

College is cycle of stripped identity in which we continuously challenge our minds, step outside our comfort zones, and sometimes lapse into being lost. Without this, a foundation to feel grounded ever so often, so has been 4 years that I passed out that were taught to us through the textbooks, the discussions, and the practical are still strongly embedded.

I feel so proud today working ,as an Associate Software Engineer which would not have been possible without the guidance, support and experience I gathered from SPM. Eloquently stated and simply put, this college is wonderful.

Department of Computer Science in SPM is no ordinary group. The staff and our senior mentors always allowed us to make mistakes, support our efforts, and celebrate our accomplishments. The work Management learnt here has helped me deal with tough times in my masters as well as in my daily office struggles.

The department prepares us well for the upcoming career challenges and I'm glad that we were a part of all the activities that took place within the department and even at college and university level.

Most importantly, being in tech corporate , the basic concepts of computer science be it data structures or languages were taught so well that it even helps me today in my current projects.

I thoroughly enjoyed my time in this college and have acquired some great experience that still helps me a lot on everyday basis.

Thank you so much for amazing three years!

TEACHING FACULTY

DEPT. OF COMPUTER SCIENCE

(L-R) MS. MANSI SOOD, MS. SONIA KUMARI, MS. REEMA THAREJA, DR. BALJEET KAUR, MS. AKANKSHA BANSAL, MS. JAYA GERA, DR. SHWETA TYAGI, MS. PRATIBHA YADAV, MS. SHAHEEN ISHRAT, MS. ANURADHA SINGHAL

Department of Computer Science

The Freshers

The Sophomores

The Seniors

Solutions to Cogitate

TRENCACLOSQUES

1. To find out the no. of pages turned each day, we need to maintain a count of names in the current page (ncp) and initialize it to 0. Then, for i =1 to n, we have to maintain an individual pages turned (pt) variable. After that, for each i, we add a_i to ncp and whenever ncp is > m, we increment the pt variable by 1 and reset the ncp to 0 (as we are now on a fresh page). We then output the value of pt for each i.

2. One way to solve this is to convert the no. a into base b. Then, if the converted no. has exactly 2 1s in its digits, and rest all 0s, then we need to return 1, else we return 0. For example, if b is 2, then by converting a to binary, we get a in the form of increasing powers of 2, and so having exactly 2 1s in the no. means it can be written as 2^m+2^n for some m and n.

3. Here, we can consider the towers as a grid, where vertical movements are possible for all towers, but horizontal movements are only possible for floors between a and b. There are multiple conditions possible here:

- If f_s lies between a and b, then the minimum time is simply the time to reach from t_s,f_s to t_d,f_s (t_d-t_s) plus the time taken to reach the correct floor (f_d-f_s)
- Else if f_d lies between a and b, then the minimum time will be the time to reach floor f_d (f_d-f_s) added with the time to move to the correct tower (t_d-t_s).
- Else, we need to add the additional time of reaching from f_s to the closest floor that connects towers (which would be either a or b, hence a-f_s or b-f_s) to the first case.

4. We can see that the characters in each position have only 2 possible changes (for alphabets b-y) or 1 possible change (for alphabet a and z). So the simplest way to find if a palindrome can be made is by trying all the possibilities one by one until we either find a palindrome(and print YES and finish) or we exhaust all the possibilities (and print NO). This method is called brute force, where we try all possibilities until we find one that fits

UMGCA.

1.Samsung
2. Aple
3. Larry
4. Yahoo
5.Interface Manager
6.Computer
7.Googol

COMING UP

SANGTARAASH '19

NATIONAL SEMINAR ON CYBER SECURITY

BON VOYAGE '19