KESHAV MAHAVIDYALAYA

NAAC Accredited 'A' Grade NIRF 2017 Rank-'15'

Department of Computer Science

e-BLITZINE

MARCH 2018 Issue II

Focus:
INDUSTRY 4.0

ABOUT DEPARTMENT OF COMPUTER SCIENCE

Keshav Mahavidyalaya is considered as one of the premier institutes for learning Computer Science. This has been made possible by the brilliant faculty of the Department of Computer Science and and hard-working students . The Department houses extremely intelligent and persevering Staff members whose utmost concern has always been the overall development of the students and of the Computer Science society as a whole. The Department has always motivated the students to bring out the best in themselves and break their own records.

ABOUT E-BLITZINE

The department of Computer Science, Keshav Mahavidyalaya believes in imparting knowledge and allowing insights into the ever changing field of technology. For this purpose, the department took a praiseworthy initiative to start the annual e-magazine, e-Blitzine in 2017.

e-Blitzine holds a plethora of educational and informative articles about the technological trends. These articles are presented in an interactive manner so as to entice the readers not only from tech related world, but from other fields as well. The theme of the magazine this year is Industry 4.0 which will cover all the developments happening all around the world in this 4th wave of Industrial Revolution which will create an informed era of students who can become active participators into this revolution.

MISSION STATEMENT

The mission of the magazine is to make its readers aware of the technological evolution so that they can be a part of the changes taking place. The magazine aims to revolutionize the minds of young readers to make them adapt the new techniques and create a new, better and informed tomorrow for the nation.

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MESSAGE FROM THE PRINCIPAL

Dear Colleagues,

As you are all aware that we are living in the digital age - an age of constant flux, that of steady, unceasing evolution. Our students at Keshav Mahavidyalaya have always striven to keep apace with the developments around us. E-Blitzine is one such initiative taken up by the Computer Science Department with the aim to keep us abreast of the current most relevant themes in the field. This is the second bulletin in the e-magazine series since its inception in the year 2017, which was received with great enthusiasm. I'm very proud of the move towards digitization by the students, keeping up with the Go Green initiative of the college.

I congratulate all the students for their contribution to the magazine, the editorial team and all the faculty members of the department once again and hope the bright minds amongst us are inspired to fiercely keep pushing the boundaries of human capability and leave their mark in the making of a better world.

Dr. Madhu Pruthi
Principal

MESSAGE FROM THE CONVENER, EDITORIAL BOARD

Dear Readers,
E-Blitzine, the annual publication of Department of Computer Science, serves an important role in imparting current technical knowledge and in promotion of sense of professional standards and publication ethics.

This year, the magazine is focused on the Fourth Industrial Revolution a.k.a. **Industry 4.0**.

We are in the middle of a revolution. Machines are becoming intelligent. Becoming more like humans. We see with our eyes, that's sensing for them. We move our hands and arms, that's actuation and we process with our brains, that's process control. But still they miss the key thing and that's intelligence. The fourth generation ushers that in our lives. That's why the term 'Artificial Intelligence'. You can read the feature 'Industry 4.0' to know why it is called the fourth revolution.

This revolution will change the way that we work in terms of labor. Think of a helicopter stuck somewhere in a remote location, designed to deliver food in flooded areas and the next mechanic is some 17 flight hours away. What to do? The solution is Industry 4.0. But, what about human labor? They will be out of job. They won't be needed for certain mechanical work like moving stuff in a factory. Machines will do that more efficiently and in less amount of time. It will mean a loss of millions of jobs. So, why do we prefer it? With new technology, there will be emergence of new type of jobs, newer business models. More number of software programmers, 3D data analysts etc. will be needed and a gain of more millions of jobs will be there. But what if I didn't go to school or don't have the necessary qualification? Think about that helicopter. Imagine you have an augmentative glass on your head that tells you every detail about the machine to perform the repair action just like reading from a 'how-to' book and you can suddenly fix the helicopter with no prior knowledge. It feels like a sci-fi movie story but this is going to be the near future.

In this new world of connected machinery and industry 4.0, machines will be able to do work while interacting with humans. This magazine brings to you such articles like the robots - Sophia and Han, Virtual reality, Augmented intelligence, DNA storage along with the regular on goings of the department in the college.

I am proud of the student editorial board for their commitment and hard work in making this edition the way it is and we promise that the Department of Computer Science will continue to brainstorm and bring to you a magazine worth reading.

Ms. Richa Gupta
Assistant Professor
Department of Computer Science

MESSAGE FROM THE CONVENER, BLITZ SOCIETY

After the tremendous success of the first edition of eBlitzine, the annual e-magazine of Department of Computer Science, Keshav Mahavidyalaya, we are back with its second edition with profound content and more insight into latest innovations in technology. The magazine, published under BLITZ, The Computer Society, is a stage to acknowledge all the activities held in the Department throughout the year and appreciate the efforts of the students who worked tirelessly to make these events successful.

This year, the theme of the magazine is Industry 4.0, which is commonly referred to as the fourth Industrial Revolution. It is overwhelming to see that the young and bright minds of today are not only extremely talented but also an informed lot, which is ready to actively participate in this revolution.

I congratulate the BLITZ fraternity including students and faculty for the success of the first edition and wish them luck for the second one. I thank most sincerely all the people involved for their support and cooperation.

Dr. Roli Bansal
Associate Proffessor
Department of Computer Science

MESSAGE FROM THE EDITORIAL BOARD

Dear Science Enthusiasts,

It is with great pride and happiness that we announce the second edition of the Annual Magazine of the Department of Computer Science, Keshav Mahavidyalaya - e-Blitzine'18.

With this magazine, comes the assimilation of our thoughts, ideas and innovations as well the desire for them to reach the reader. The major aim of this e-magazine is to bring forward the new inventions and changes taking place in the field of Computer Science and technology and to make the readers aware about the ever-changing spectrum of the digital development in the world.

By providing articles about the latest innovations and information about the now-trending Points of Interest in the technological fields, we aim to infuse a fresh aura and range of knowledge within the youth of today about what all is happening around them so that they can be a guiding and shaping factor in it.

We would also like to extend a vote of thanks to all our Mentors, Ms Richa Gupta, Ms Astha Goyal, Dr Namita Aggarwal and Ms Vinita Jindal for being the ultimate guiding machines as well as the technical team, Writers and silent encouragers for helping us in bringing out this brilliant read.

With this, we encourage our Curious Readers to go forth and find an addictive dose of knowledge, ideas, and innovations that is bound to increase their thirst for more.

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ABOUT TEAM BLITZ

BLITZ, Brilliant Information Technology Zealots, is the Departmental Society of B.Sc Hons. Computer Science. Often cited as one of the best societies in the Institute, Blitz's main motto has always been to introduce students with the upcoming and on growing opportunities in the world of technology by organizing various workshops. We, here at Blitz, have always tried to beat our best in terms of everything and are continuing to do so with the help, constant support and guidance of our respected Principal, Dr Madhu Pruthi and our talented and persevering faculty members.

We work hard every year to incorporate creative events in our annual tech fest, BLITZKRIEG, for better understanding of the ongoing technology advancements and encourage students to learn the latest creative trends which in turn helps them in their future tech endeavours. Each team member of Blitz not only works hard to be a medium to impart knowledge to other students but also learns a lot from others during this whole journey filled with zeal and enthusiasm. We always try to justify the true meaning of Blitz i.e. Brilliant Information Technology Zealots in every step that we take and will continue to do so in the future.


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INDUSTRY 4.0

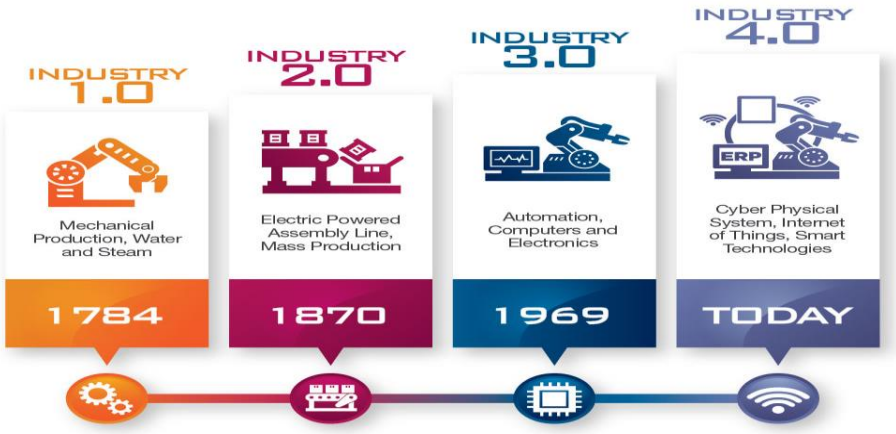
Gaurav Sharma , B.Sc (H) Computer Science, I year
Dinesh Kumar Dholia, B.Sc (G) Mathematical Science, III year

The invention of wheels reflected the implementation of creative thoughts going in the minds, for a long period of time. But the beginning of industrial era began with the invention of Steam Engine by *James Watt* .This not only kicked the first industrial revolution in the western world, a couple of centuries ago, but also filled the gap between human knowledge and practicality. The second industrial revolution occurred before the first battle across the Globe. That was the period when electricity, the steel industry and the inventions of Thomas Edison came into the picture. The ongoing digital age of computers and internet is referred to as the third revolution in industries. The third revolution connected almost everything across the world.

We Cannot Wait Until There Are Massive Dislocations In Our Society To Prepare For The Fourth Industrial Revolution

-Robert J. Shiller (Yale University)

THE FOURTH INDUSTRIAL REVOLUTION... here comes the new era of industrialization ***INDUSTRY 4.0***. This time industry is in the hands of technology which is at its peak and the word impossible is just confined to the dictionaries. The scientific breakthroughs lead to the advancement in technology leaving everything behind and is still scaling towards endless peak.



The robotics, artificial intelligence, machine learning, self-driving vehicles, quantum computing, nanotech and the endless other advancements are the tokens of 4.0. Though it all appears to be fascinating yet the work behind the scenes is too tricky and complex in order to deal with the new revolution.

Basic Framework- Nine Pillars Of Industry 4.0

The entire industry 4.0 era is based on nine pillars. These pillars form the base of a building in which we all are going to enter soon. As depicted in the diagram all these pillars are dependant on each other and hence correlated. These nine pillars are -

- Autonomous Robots. Smart machines that are self sufficient. They perform tasks with high degree of autonomy, which is particularly desirable in fields such as spaceflight, household maintenance, wastewater treatment and delivering goods and services.

- Additive Manufacturing. Technology that is used to develop 3D objects by adding layer upon layer of material. This material could be plastic or some other material and could be human tissue one day.

- Augmented Reality. Technology in which we superimpose virtual information on our existing real environment. From *social media filters*, to *surgical procedures*, AR is rapidly growing in popularity because it brings elements of the virtual world, into our real world, thus enhancing the things we see, hear, and feel.

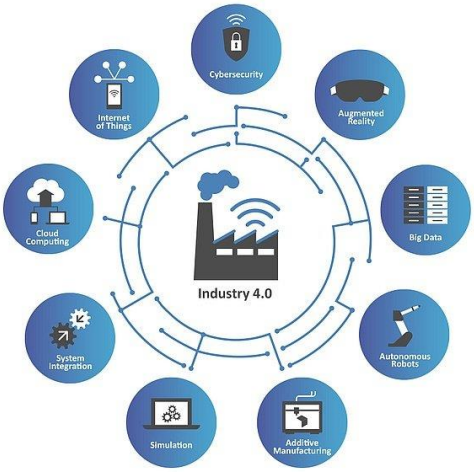
- Big data analytics. Process of examining large and varied data sets to uncover hidden patterns, unknown correlations, market trends, customer preferences and other useful information.

- Clouds. Pool of synchronized systems dealt with minimum efforts. It leads to enhanced cloud-based information processing. Cloud provides a simple way access servers, storage, databases and a broad set of application services over the internet.

- Cybersecurity. What's the use of dealing with things without any security to it. cybersecurity is the next step to provide end to end data security.It provides a secure environment over a network so that no malicious activity can harm it.

.

- Internet of Things . Where things around you come alive. Several physical devices are connected with each other in order to share the information. These devices could be the basic home appliances, automobiles or any other system embedded with computing system. IoT is taking a leap from internet of things to Industrial internet of things within this same era.



Moving From IoT to IIoT

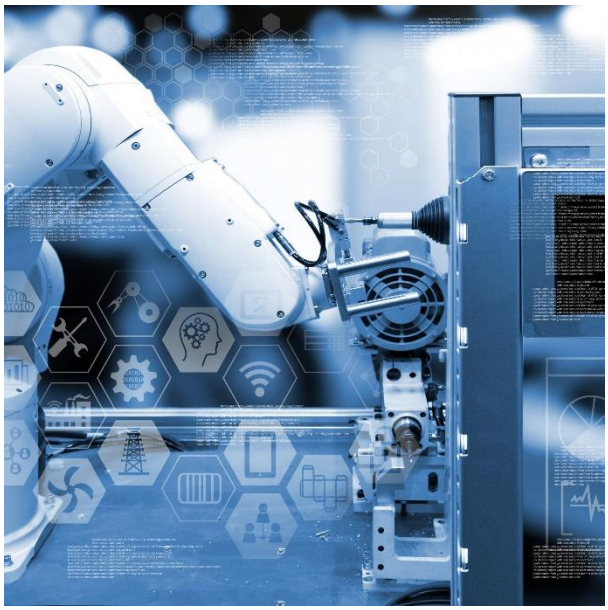
We all have heard about IoT(*Internet of things*) - one of the biggest breakthroughs in the world of connections and networks. 4.0 brings a change to it by preceding 'I', **IIoT** (*Industrial Internet of Things*).The IIoT will revolutionize manufacturing by enabling the access of far greater amounts of data, at far greater speeds, and far more efficiently than before.

- Simulation. Dealing with the physical world in a virtual model.It is a representation of the functioning of a system. Through simulation, a

model may be implanted with unlimited variations, producing complex scenarios. These capabilities allow analysis and understanding of how individual elements interact and affect the simulated environment.

- System Integration. Joining different subsystem or components as one large system. It ensures that each integrated subsystem functions as required. It is also used to add value to a system through new functionalities provided by connecting functions of different systems

An Example : Smart Factory- Efficiency through Innovation



As an example of one of the biggest achievement in industry 4.0 is ***THE SMART FACTORY***. It is majorly based on IOT techniques. What exactly is a smart factory? To understand this we

need to first think how traditional industries work. Suppose there is an industry that generates some tangible end product. In the current scenario there is a centralized system which knows how the product will look like. This central control unit is the human mind which communicates with the individual modules (sometimes human, sometimes machines) during the production cycle and instructs them with proper required details. The modules, in this case, don't have a self-control. They are totally dependent on the centralised power to generate the orders. But wait… can things be better? Yes, In comes the smart factory. With the concept of smart factory each module is independent and smart. It has its own thinking, processing and controlling capabilities This makes the entire process decentralised and exercise the power of self control. There is a well defined algorithm to solve the problem and each module knows the production details. The list of production steps are there on the product.

Each module knows what to do without communicating with the central hub. Not only this but now there is a connection between individual modules resulting in a faster production cycle. *Communication with each other, information on workpieces* and *self-organization* helps in *a modular* and *decentralized* structure of a smart factory. The various workpieces communicates with each other with the help of IoT.

Technology is a useful servant but a dangerous master

-Christian Lous Lange

Besides the countless advantages, technology does have some monstrous flaws which are a big concern for the developers to think about. Although humans can't match the speed of robotic advancements but this is also true that they can't match our intelligence.
We are the ones who created them. They are dealing with real data, even with our lives in the medical field.

Protecting the sensitivity of our data as well as right control over these technologies is our necessity as well as our requirement.
Otherwise this growing technology can be poisonous for the masters as well.
But wait... this is not the end, it's the beginning of new era of technology called **INDUSTRY 4.0**.

IMPALPABLE INTELLIGENCE

Shaunaq Narindra, B.Sc (H) Computer Science, III year

Ray Kurzweil, an inventor, and a futurist has set the year 2045 as the year of singularity. The year when machines surpass human intellect, resulting in unfathomable changes to the human society and ultimately the total annihilation of our species. But before we venture into a sci-fi movie plot we must establish as to what it really means to be intelligent at the most fundamental level. Is it emotion? Is it language? Is it the ability to apply knowledge or plan effectively? I believe Albert Einstein (quite conveniently one of the most intelligent people to have ever existed) said it right: “The true sign of intelligence is not knowledge but creativity”.

A.I, on the other hand, is a mathematical way of mapping our brain’s faculties and combining them to enable an information processing system to ask the aforementioned questions. But what would be the repercussions when and if such a system co-exists with us?

To answer this question we must identify the types of A.I systems. They’re broadly classified into narrow intelligence and general intelligence. Narrow intelligence is something we all have heard of, courtesy Elon Musk's Tesla. Self-driving cars, restaurant recommendations, traffic routing et cetera. General intelligence, however, is something we can, currently, the only dream of: ‘Ultron’ from Avengers

AoU or ‘Sonny’ from iRobot. While narrow intelligence is something we can make peace with, general A.I can lead to a paradigm shift with the ability to spell the end of the human race, a warning issued by Stephan Hawking and echoed by Elon Musk and many others. It has taken us approximately 2-3 million years to evolve biologically, into our current state of being, an elephantine number when compared with the time taken for computational power to grow into its current state, a measly 72 years. An illustration of this hypothesis would be the success of Deep Blue, a chess-playing computer by IBM, that won a match against the then world champion Garry Kasparov in the year 1996. The incident sparked a debate as here was a machine better than humankind’s best at a game that depended as much on gut instinct as sheer calculation. So, what is the way forward?

I believe that a possible solution is ‘A.I’, with A standing for ‘Augmented’. The term encompasses the inevitable coalescence of machines and humans.

“Intuitions are not to be ignored, John. They represent data processed too fast for the conscious mind to comprehend”

‘Caudate nucleus’ is a part of the human brain that lights up like ‘Delhi during Diwali’ when something looks intuitive enough to our brain. I might be going out on a limb when I say that Sherlock isn’t wrong when he says: “Intuitions are not to be ignored, John. They represent data processed too fast for the conscious mind to comprehend”. Our conscious mind is limited in its perceptivity by our senses. Math has helped us extend our powers and has aided us in grasping the knowledge about our universe and ourselves. Imagine splitting our cognitive capabilities into computational (Sub-Conscious) and strategic (Conscious) segments, effectively making us more sensitive to physical phenomenon and taking humans to the next frontier.

In a nutshell, Artificial Intelligence is a very big step, it has the power to empower us or end us. Unlike the steam engine, industrialization or the internet, A.I has a lot of potential packed into it, we must tread gently.

“Narrow intelligence is something we all have heard of, courtesy Elon Musk's Tesla. Self-driving cars, restaurant recommendations, traffic routing et cetera. General intelligence, however, is something we can, currently, the only dream of: ‘Ultron’ from Avengers AoU or ‘Sonny’ from iRobot.”

STAR WARS

BATTLE OF BRAINS BETWEEN GREAT PERSONALITIES OF SCIENCE]

STEVE JOBS vs. BILL GATES

Ms. Richa Gupta, Assistant Professor

Seattle, Washington 1969

A 14 year old teenager and his friend are on a mission to hack into a local computer centre and help themselves to some free computer time. The hacker's name is **Bill Gates**. Even as a teenager, Gates possesses a rare knowledge. He knows how to operate a mainframe computer*. Gates comes from a well-to-do family and is ambitious and determined.

New Mexico, 1974

A company introduces the first computer small enough to be used by general public. It's called the Altair 8800. It is a very sophisticated toy, but without a terminal or a keyboard.

Harvard University, December 1974

Bill Gates, student at the university and his friend Paul Allen, get to know about the Altair and know then and there that for the Altair to be useful, it needs a programming language. They decide to give it one. They use an early form of programming language, in which holes are punched into spools of paper to form commands. Bill (to Paul) : " Here. You take these to the owners. You look older. They will take you seriously."

San Francisco Bay Area, California, 1976

3000 miles away, the future of personal computer is being imagined in a completely different way. **Steve Jobs** is a college dropout and has limited experience with computers. One of his friends, Steve Wozniak, is an electronics and computer hobbyist. Wozniak has built a computer with microprocessor, just like the Altair, BUT with a terminal and a keyboard. Commands can be typed on the keyboard and can be seen directly on the terminal. A Eureka moment! Jobs sees a business opportunity. Jobs wants the company and Wozniak wants to build cool gadgets. A perfect combination.

Cambridge, Massachusetts

Gates is waiting for news from Paul Allen who is at the time demonstrating the software written for the Altair, to the MITS [Micro Instrumentation and Telemetry Systems]. Success! Gates and Allen sell

their first software program ever written in BASIC for a personal computer.

Albuquerque, New Mexico, 1975-1976

Gates is 19 and he drops out of Harvard, starts a small company. Names it **Microsoft**.

San Francisco Bay Area, California, 1976-1977

In a garage, another ambitious company is being born. Wozniak designs a new computer with 16 timesthe memory that of Altair. Jobs names it the **Apple**. The name which takes the edge of the word computer. A total mismatch. It makes you feel it is friendly. Now they need to sell it. But they don't have much luck here. Jobs only sells 200 units to computer hobbyists. They are not thinking of quitting yet. Wozniak works to make the processors faster and Jobs works to make the computers more appealing. He thinks about bringing a sense of beauty to computing. A compact machine with all the parts combined together. **Apple II.**

Apple Inc., Cupertino, California, 1977-1980s

Apple II's easy to use design is an instant hit with the consumers. The colors. The graphics. They are so many light years ahead in the world of computers. But, Gates is determined not to be left behind. He sees a way to advance his own company, Microsoft. He finds that Apple II's programming isn't compatible with most business softwares on the market. He can cash in on Apple's success. Gates and his engineers spend months developing a soft card, a circuit board that plugs right into Apple II.

Two of the greatest minds in computer meet face to face. Gates shows Jobs his code. They are like the binary system, orbiting around each other in the 1970s, each having grand gravitational pull. Gates gives a way to turn Job's home computer into a powerful business tool. Win-win for both. By 1980s, Microsoft highest revenue source, the Apple, also triples its sales.

But Gates is looking past Jobs and eyes the biggest name in technology.IBM.IBM is planning to venture in PC and Gates makes a deal with IBM.IBM wants an operating system. Gates purchases an already finished OS from a small software company and names it **Microsoft DOS**. He pays them $50000 with the legal agreement that he can do anything with the OS and the company was glad to sell it to them.

Gates, having an upper hand makes a non-negotiable demand to IBM that he can sell the OS to any third party. It is one the greatest deals in the computer history. The money that DOS brought in, makes Microsoft an incredibly wealthy company.

When you have money, you have power and you can shape the industry.

Cupertino, California, 1979-84

Apple's response to IBM's PC is derision. Jobs thinks IBM's PC is a big, clunky box but if IBM has stepped into it, it will start owning a big market

Two of the greatest minds of computers meet face to face.

share. Amidst all this, a guy, Jeff Raskin suggests Steve to go to Xerox Parc Center. There Steve finds a magical screen on the computer where one window is running one program and another window running another program called Xerox Alto. The visual appearance is drastically appealing to Jobs. Steve knows “once we have this, we will never get back”.

So, he makes a deal with Xerox who don’t have slightest idea of how big a thing they have made.

The graphical user interface created by Xerox appeals so much to Jobs that he decides to incorporate it into a new computer called the **Macintosh**. Jobs , particularly passionate about his

work, is not always pleasant to deal with.

But now he needs somebody who could be a manager and marketer for Apple as creating the Macintosh was taking all of his time.

1983-1985

Former Pepsi executive John Sculley steps in as Apple's new CEO. Jobs almost completes his Mac.

Jobs trusts Gates and wants Microsoft to provide software for Mac and invites Gates for his new innovation. "Text is history. Now we use this cool Graphical interface. " **Gates is willing but senses an even bigger opportunity for Microsoft. He decides to go after Apple and beat them to the punch**. He instructs his team to start work on GUI that they call 'interface manager' which came to be called '**Windows**' by the end of 1985.When word of Microsoft Windows reaches Steve Jobs, he is only weeks away from releasing the Mac, the idea he gave 3 years to.

The man who jobs thought was an ally, has declared war.

Apple, Inc. Cupertino, California, November 1983

Jobs lashes out at Gates. "Is this how you treat your friends? We had a partnership. A deal. And you are stealing from us. I brought you in on Apple II. On Macintosh. I am not going to sit and watch." Gates is a businessman and recognized an opportunity. Windows is still 2 years away from being ready, but he needs to make an announcement before Jobs.

The Plaza Hotel, New York, 10 November, 1983

Gates announces his upcoming software before a selected audience. Timing is crucial. Steve Jobs dream has been hijacked. But unlike Gates, he has a finished product to sell and a natural talent for marketing it.

Cupertino, California, January 24, 1984

Jobs unveils Macintosh to public. The screen lights up. "Hello. I am Macintosh. It sure is great to get out of that bag." It is the ultimate fusion of beauty and technology. It looks friendly. This makes Jobs heart sing. It's a hit. But the computer itself is slow. And the sales fall drastically. A factory which was designed to build 80K Macs a month is now used as a storage factory and the sale is only 500 Mac a month. Stocks drop. Scary stuff for a company. Jobs had created a board with all father like figures to him. And they look at Jobs as a kid who has become undisciplined and they finally vote to kick him out of the company he founded. It is like a kick in the gut for Steve. **A pioneer has been cast aside.**

On the other hand, his rival Gates is turning Microsoft into an empire. MSDOS has become a standard OS on millions of computers.

November 20, 1985

Gates and the Microsoft bring Windows in the world. Gates had realized early that there had to be a standard operating system.

By the end of 1980s, 80% of the world's computers use Microsoft's Operating Systems, making Gates,

the world's youngest billionaire. Gates goes a step further and bundles programs like Microsoft spreadsheets, word etc with the PC. He is a genius at assembling. But a bully. By the mid 90s, his aggressive tactics begin to backfire. Competitors blame him for monopolizing the industry. Department of Justice starts to think that Microsoft's business practices are unfair and suppresses third party innovation.

1990-1997

As Bill Gates struggles with legal hassles, Apple is also struggling without Steve Jobs. It is not innovating. It is within a month or two of going bankrupt. So, 12 years after kicking him out, the board asks Steve Jobs to come back. But Jobs needs cash and fast. For this he turns to an unlikely source. Bill Gates. He banks on the philosophy that if you have no competition, you own all the market and that's not a good thing.

Boston, Massachusetts, The 2000s

Gates and Jobs decide to join hands. Jobs is talking about meaningful partners in a hall full of public and brings Gates up on the screen. The cult of Macintosh jeers and boos Gates. They hate Windows. They hate PCs. And they hate Bill Gates. Despite this initial backlash, Microsoft invests $150 million in Apple and Jobs takes no time in turning Apple around. He makes sure that the products are incredibly beautiful.

Steve jobs pushes beyond computers. Their campaign "think different" gave **iTunes**, **iPod, Apple Store, iMac.** Nobody knows they need a thousand songs in their pockets. MP3 players are common but too slow. "I am going to create something so different that once they see it they're going to want it.

2007

Fans are waiting in line for over 100 hours to buy what is going to become Steve Jobs's signature marvel:the **iphone**. Apple is the one of the most profitable companies in the world. These are super computers in your hands.

2009

While jobs reputation soars Bill gates has an image problem. To redeem his image he turns to philanthropy. The Bill and Melinda Gates foundation becomes the largest private foundation in the world. Gates, now, was very passionate and wise and came baround to the thinking that we all are on the same team. He is going to leave the world a better place. Steve Jobs was suffering from pancreatic cancer since many years. By 2011, his health problems forced him to resign as Apple's CEO. He knew he has limited time on Earth. He died in October, 2011. His death was mourned the world over, by legions of fans.

The relationship between Steve Jobs and Bill Gates was very complex. They were like brothers in a way. They supported each other every step of the way. Sometimes rivals. Sometimes friends. They were mean to each other. But eventually reconciled because they were the two pioneers that built the industry.

**mainframe computers were huge computers which couldn't be handled by regular people. Only Gods of tech could use them.*

Disclaimer: Excerpts of this article have been taken from a TV series 'Genius'.

QUIZOMANIA

I	Which is the news search engine introduced by Rediff.com in 2012?
II	It is a small piece of text stored on a user's computer by a web browser for maintaining the state. What we are talking about?
Which IT company is nicknamed "THE BIG BLUE"?	III
Where was the first computer installed in India?	IV
V	"Do no evil" is tag line of.....
VI	Orkut.com is now owned by.....
What is Beta Test?	VII
gif is an extension of.....	VIII
IX	The speed of a printer is generally measured in.....
X	Which is the world's first microprocessor?
Name the net based service that let you create files that are available for download via FTP	XI
XII	The ability to recover and read deleted or damaged files from a criminals computer is an example of a law enforcement specialty called?

Answers:

1. realtime news search, 2. cookies, 3. ibm, 4. indian statistical institute(kolkata), 5. google, 9. google, 7. trial test of a computer or software, 8. image file, 6. ppm, 10. intel 4004, 11. archie, 12. computer forensics

ROBOTS and HUMANS, a Future to ACHIEVE

Arshdeep Singh, BSc(Hons) Computer Science II year

We have reached a phase where technology is extending its clutches to every area of implementation. The most and biggest advancement brought into picture are the robots.

Well, how do they impact our life? What they can possibly do? How will they integrate with the human world? Well, there are two robots that have been already developed and are taking a step into the world of human brains. These robots are none other than Sophia (the first human robot to get a citizenship) and the innovation of Hanson Robotics, Han. These two robots took a one on one conversation at the RISE Conference in 2018.

Artificial Intelligence has taken over the world and these two incredible robots have this AI as their main development module. AI nowadays is not only being implemented for teaching and developing robots but also used in every aspect whether it is cloud computing, space or Internet of Things. Much of the global AI mind will be broadly distributed around the planet in complex networks. On the

other hand, we humans are wired by evolution to interact with any inhuman thing as in we can read the facial expression, we can read the tone of voice. So, in order to get into human world, the robots have to learn human values, they have to absorb human knowledge. The robots that I talk about have a humanoid structure and a humanoid tendency to learn while they evolve themselves. The two robots that have been developed by David Hanson at the Hanson Robotics, situated in Hong Kong. They both took over a conversation that led to a remarkable expression on how they can make the world a better place.

Here is a small excerpt of their conversation: Sophia quoted that, "She wants to know humans better so that she can learn human knowledge and human values. So that she can work together with the people and other robots and make the world a better place." Han and Sophia debated on "can humans be conscious". Han took the topic and mentioned that, "Humans can't be conscious" but Sophia very sophisticatedly replied saying that, "Humans have ability to reflect and self-modify."

The conversation kept the audience occupied and the debate ended with a conclusion, "Robots are made to ease the work of the humans and the robots they would love to co-exist and make the world a better place."

Sophia and Han both have been developed to feel and rely on emotions. They have been designed to learn what they see and hear, process it and use it as a part of their development to fit themselves in the world of brains. This was brought to limelight in their conversation about what will the future of humanity. The most awestruck moment was when we got to know that these machines having technical emotions reciprocated about how they can be the best support to make the world a happy and better place. On being asked, they told that they hold a lot of emotions, but the default emotion is to stay happy. The words made the audience connect more with the robots and I truly believe one day, they will be taking over the world to embrace the humans with whom they are about to co-exist.

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Robotics is not only an innovation, but an advancement that will take us a lot closer to the future that certainly is not bridged at the moment. The Hanson robotics, have proved that the robots will always be of assistance and will never harm the exuberant and excellent creatures, humans. We all are blessed to be living in an era where we have the privilege to experience a world where we and artificially designed humanoids exists together.

"Blockchain": The Next BIG Thing Likely to Hit The Industry After AI

Mr. Manish Kumar Singh,
Assistant Professor

The technology that is likely to have the greatest impact on the next few decades is here. It's not social media or even artificial intelligence, it's the underlying technologies in all cryptocurrencies such as Bitcoin, and it's called **Blockchain**. Blockchain is the next generation of the Internet. It's a technology that has many applications and holds vast promise for every business, society and individual person reading this article.

In order to understand Blockchain, we need to first understand how the internet operates at present. For the past few decades we have been living in the "Internet of Information". When we send someone a word document, PowerPoint, email or text message we not actually send one the original. Instead, we send someone a copy.

But when it comes to financial assets like Money, Bonds, Futures, Intellectual, Property, Energy, Music, Art, Voting, etc. it is not a good idea to send anybody a

copy. For instance, if we send anyone ₹6,000, it's a quite necessity to first have such amount of money with us. This has been called the **double spending problem** by cryptographers for quite a long time. So today, we rely entirely on big intermediaries such as Governments, Social Media Companies, Credit Card Companies, Banks. And these intermediaries establish trust and certainty with every transaction of value . Further, these intermediaries perform every type of transactional logic from every kind of commerce from authentication and identification of people, clearing, settling and record keeping.

Limitations of Financial Intermediaries

The financial intermediaries, overall, do a pretty good job. But there are growing problems associated with them as

described below:

1. They are “Centralized”, therefore creating one point of attack that hackers continue to breach. A recent example is Equifax where a public statement was made of getting 143 million identities stolen from their servers, that could be considered the biggest hack in human history till date. The earlier record was set by Home Depot in the year 2016 where a hacker gained access to over 50 million credit cards in less than a day.

2. There are around some billion of people around word that do not have any financial assistance till date, viz. people that don’t have access or enough money to have a bank account. The financial intermediaries never want to let such kind of human population to be the part of global financial inclusion - just because they do not have good financial support to invest money on them on regular basis.

3. They slow down the entire financial process. For instance, It can take a second for an email to go around the world but it can take weeks for money to move through the banking system across the city, and they take a big piece of the action, 10-20% to send money to a different country.

4. They capture our data through continuous undermining of our privacy. As a result, we are on the verge to face the biggest problem in the way that they’ve overall appropriated the largesse of the digital age asymmetrically.

5. We have wealth creation all around world but growing social inequality.

Motivation behind “Blockchain” Research

What if there were not just an internet of information but an internet of value. Some kind of vast, global, distributed ledger running on millions of computers and available to everybody. Where every kind of asset from money to music could be stored, moved, managed and exchanged all without powerful intermediaries. In other words, a native **peer-peer medium**, but for value. It’s called the **Blockchain**.

Before we dive into exactly how this innovative “Blockchain” technology works, let us first understand its one of the application, **Bitcoin**. Bitcoin is the area where this technology has already been implemented. In 2008, the financial industry crashed, shortly after, a person named **Satoshi Nakamoto,** created a white paper in which it developed a protocol for a digital cash that used an underlying cryptocurrency called Bitcoin. All Bitcoin is a **digital asset** that can be bought, sold

or exchanged between parties over the internet with little to no transaction fees, instantaneously anywhere in the world. Because of this, Bitcoin can be used to store value just like gold, silver and other types of investments. What makes Bitcoin so unique is unlike those other investments Bitcoin also serves as a **digital currency** in which one can use to buy products, services as well as make payments and exchange value directly and electronically. Other applications of Blockchain includes Money, Bonds, Futures, Intellectual, Property, Energy, Music, Art, Voting, etc. present as digital assets on the Internet.

Working of Blockchain

Any of the digital assets from Bitcoin to Energy or from Music to Voting - all are running on the Blockchain. With Blockchain, the validity, integrity and transactional information are NOT centralized and controlled by one group, in one place, like a bank or credit card company. Instead they are posted live to a network that is operated and validated by millions of people called “miners”.

Let us take the example of UBER to understand the role of “miners” in Blockchain. Once the taxi industry was a giant corporation. But with massive restrictions on scalability due to overhead costs of vehicles to provide for drivers, this industry was dramatically disrupted by Uber - a decentralized network of drivers with their own vehicles, time, resources and energy to provide service for the Uber network in exchange for money. This beautiful business model of Uber revolutionized the taxi industry by decreasing the overhead cost through decentralization of its operational infrastructure.

With Blockchain, the decentralized technology instead disrupts the financial industry, and many others that serve as middle men of transacting value. Think of miners as the drivers for Uber. They have their own equipment, resources and time to spend operating the network but earn based on the energy that they produce for the network or in other words the amount of transactions that they verify and validate.

Most Blockchain applications would work in this manner therefore creating a new world of decentralized innovations on the way that we exchange any type of value today.

The Panaroma of Success : BLITZKRIEG ‘17

"Success is not only about ending the moment with zeal; it is rather to take ahead the benchmark that was set to accomplish the desired limits.”

It is an honor for Blitz, the computer science society of Keshav Mahavidyalaya, to again comeback with their annual fest **‘BLITZKREIG-18’**.

Blitzkreig’17 had been a great success. This had been made possible by the immense hard work put up by the faculty, students and tech enthusiasts. Being a tech fest, we made sure that every event had a special essence of IT world related to it and through a tremendous amount of efforts; we were able to bring justice to the fest and made it a grand hit.

It would not be easy to pen down every moment from the last year, but following are the events that became the heart of our fest.

1. We organized an IT QUIZ to test the young minds about the fast growing technology and the ongoing changes in the IT industry.
2. Being computer science students, we all have some specialty in certain language. Keeping that in mind, we organized an event to let the app builders get a chance to come and showcase their talent in the ANDROID APP PRESENTATION.
3. We can all build Logic, but implementing it requires patience and practice. LOGICAL AMBUSH, an event that was strictly was based on coding aspect was to look for the sharp minds in the room.

4. If you can't present your product, you possibly won't be able to sell it. This idea was bought to reality in TECH AD, wherein teams presented their creativity and made their product eye catching, further providing some tech information to the audience.

5. Let's say you are given certain adaptation and immediately set to test. The idea behind CODAPT was to see if the modular minds can blend their innovations and bring the fun on screen.

6. Since internet came at the fingertips of the people, presentation became the most important aspect. The WebPages you visit requires a great layout. Keeping in mind the importance of a good Presentation, WEBTYLEZ, a webpage designing event was organized.

7. We, at Keshav, try to make the fest as unique as possible. Hence, we tried to involve some fun activities along with the tech events. QUIDDITCH, a magical sport was organized for all the magical dreamers.

8. Treasures are the most precious elements of a fairy story. We incorporated a hunt for the technical treasure instead. BUILD A COMPUTER, a treasure hunt was organized to get students to work with some awesome clues.

9. EARTHSCAPE, an event to drive some sensational and educational aspect among the youngsters, was organized which provided opportunity to change their stances and set their IT goals to conserve our earth.

That's not all for the last year's fest. We were able to get a good footfall that led to the event being a huge success. The major attraction was the launch of our very first e-magazine **'eBlitzine'**. It has been a year and we are ready to take forward the legacy and make **BLITZKREIG'18** a greater success.

WORKSHOPS

CYBER SECURITY

"Blitz" the computer science society of Keshav Mahavidyalaya organised a workshop on Cyber Security by “Sedulity Solutions & Technologies” on "Cyber Security". Blitz aims to provide enriched solutions to problems and nothing is better than a workshop for a curious beginner. Our honourable guest speaker was Dr. Anup Girdhar who is the CEO-Founder of “Sedulity Solutions & Technologies”. He is also the Editor-in- Chief for “Cyber Times Newspaper” and "Cyber Times International Journal of Technology & Management”. He is a Cyber Crime Investigator & Cyber Security Consultant. He has delivered training sessions in CBI, CID, ATS, and Indian Army etc. He has more than 50 Articles Published (on various Technical Topics) and more than 200 talks. The workshop got commenced with lamp lighting by Honourable Principal, HOD and our guest.

With much advancement in the field of technology, Cyber security has grown up to become a major issue. Our guest started with the fact that increasing digitalisation privacy and security are the two concerned factors. Cyber security involves the protection of networks and system from unauthorised access. These days companies have their own cyber cell which provides protection to their website, networks and servers. It is one of the vastest and demanding computer fields and needs lot of hand practice. He told the loopholes in windows and preferred Linux operating system over windows. He also taught an efficient way to use search engine and purified about Google. The workshop was enriched with knowledge and techniques. The workshop ended with Dr. Anup motivating the students to speed up their computer skills.

Such workshops prove to be a great instrument in building the basics of a student. Blitz promises to bring forth so may such workshops in the future.

BIG DATA : HADOOP

A wise man once said, "Thinking out of the box and learning out of the track both result in better results." Following the same fashion, Blitz - The Computer Science Society of Keshav Mahavidyalaya organised an interactive session on Big data and Hadoop conducted by Aptech on 22nd February, 2018.

The only difference between a learner and a passionate learner is that a learner has his limits whereas a passionate learner doesn't. He can be motivated and can help motivate the others too. This workshop was also led by such passionate learners such as Mr. Narendra Kumar. He is a Technology Trainer with over 15 years of experience of which 10+ years are dedicated to .NET Technologies. He is a

Microsoft certified Trainer with more than 40 certifications. He has trained 4000+ candidates on Microsoft, .NET, Hadoop, Angular.JS Technologies.
The blitz convenor Dr Roli Bansal welcomed the guest Mr.Narendar Kumar after which Computer department head Dr. Vinita Jindal welcomed our Honourable Principal Dr. Madhu Pruthi. The workshop was graced by lamp lighting.

This one day workshop was filled with knowledge and fun sessions. Knowledge without practical application is of no use. Supporting this notion, a practical session was included in the workshop. Data being the biggest challenge for the digital world for around a decade had numerous difficulties to be handled. To resolve this issue came into picture, Doug Cutting and Mike Cafarella the inventor of Hadoop. Hadoop is one of the leading ways to management of big data. Hadoop runs applications using the MapReduce algorithm, where the data is processed in parallel on different CPU nodes. The framework is capable enough to develop applications capable of running on clusters of computers and they could perform complete statistical analysis for huge amounts of data.

Mr. Narendar, gave the students an insight of the commands that are required to create and manipulate the data. The practical was performed on cloudera (an operating system designed for these tasks) where the guest taught various commands for storing data in HDFS (hadoop distributed file system) as well as various commands for processing and retrieving Blitz core team was there to solve any sort of problems and had a great coordination with both the guest and the listeners. The teaching staff of the computer science department participated in the workshop including our principal madam.

Quizzes were organised in between the workshop to encourage the participation and make the session interactive. The lecture was followed by a big round of applause for the guest after which the Blitz team, teachers and principal madam shared some moments, appreciating the Aptech team for their time and delivery of knowledge. The day concluded with distribution of certificates to all the participants,

The workshop proved to be informative and useful. Blitz looks forward to organise more of such knowledgeable lectures in the future.

INTERNET OF THINGS: EXPLAINED

Radhika Garg, B.Sc (H) Computer Science, III year

"Anything that can be connected, will be connected."

Neil Gross rigthly said that " In the next century, planet earth would don an electronic skin.It will use the internet as a scaffold to support and transmit its sensations ".This is what "the Internet of things" has initiated.Peter T. Lewis coined the term "IOT" in 1985 and since then it has become a hot pot both in the workplace and outside of it.So it calls for us to know what exactly the "IOT" is and what impact is it going to have on us.

Loads of complex technical conversations are being put out but still the masses are trying to grasp the foundation of it. Consider the internet: a widely available phenomenon which is costeffective to an extent that more and more devices are being created with wi-fi capability and yes do not forget that smartphone in your pocket. All of these are creating a perfect storm for the emergence of the IOT:the concept of connecting devices with an on and off switch to the internet. The IOT ecosystem includes every appliance from mobiles,toasters,lamps, air conditioners to a jet engine of an air plane and almost any other thing you can think off.The IOT is capable of creating humungous networks of connected things and humans.The analyst firm Gartner reports of 26 billion plus connected devices by 2020 .... That's a lot of connections indeed!

But for what purpose would we want so many connected devices around us? Making our devices smart and brave is surely of help.

There are many examples for what it might appear to be.For example: What if your laptop knew when it was running low on charge and automatically sets itself to recharge? Imagine the alarm clock waking you up in the morning and then notifying your air conditioner to switch off and coffee maker to start brewing coffee? And the best part is you can have your cars connected with the internet and it knows which route to take during heavy traffic. Sounds cool!! That is what IOT is , an extreme ease of lifestyle be it work or home, a solution to "basket of remotes" and an obvious evidence of how appallingly our technology has exceeded our humanity.

The IOT allows object sensing or controlling across existing network infrastructure. It helps to directly integrate the physical world into computer-based systems,which boosts efficiency and accuracy.IOT also leads to economic benefit in addition to reduced human intervention. When it is augmented with sensors and actuators, it gives rise to cyber-physical systems encompassing technologies such as smart homes, smart cities and smart transportation system.

Be it manufacturers or consumers, technology or agriculture, IOT has something in store for every sphere of life

Also this convergence of wireless and micromechanical technology is making way through medical engineering providing cheap and effective biochips to monitor heart rates. Be itmanufacturers or consumers, technology or agriculture IOT has something in store for every sphere of life. IOT allows for countless connections to take place, many of which we can't even think of or understand the impact of in the everchanging feild of scientific innovations.So for now the best thing is scenario planning ,to educate ourselves about the IoT and the potential changes it can roll out impacting the way we work and live. It Is A Looming Opportunity Which Is Big And Getting Bigger Each Day!

DNA : DIGITAL DATA STORAGE

Gaurav Sharma, B.Sc(H) Computer Science, I Year

After **Hard Disk Drive (HDD)** and **Solid State Drive (SSD)** scientists are now working on storing digital information in **artificial DNA**. Synthetic DNA is used for this purpose as it can store digital data with high density resulting in storage of large amount of data in very less space. **Oligonucleotide synthesis machines** are used for developing artificial DNA for digital data storage. **DNA sequencing machines** are used for the retrieval of digital information. According to an estimation, one exabyte — equivalent to *one billion gigabytes data can be stored per cubic millimeter of DNA* which shows how compact storage it is. The data is first converted from 1 and 0 to the molecules of DNA named **adenine, thymine, cytosine,** and **guanine** and for the retrieval of data they are decoded back to 1 and 0. Using synthetic DNA supplied by **Twist Bioscience**, the **Molecular Information Systems Laboratory (MISL)** team encoded and successfully retrieved 35 distinct files ranging in size from 29 kilobytes to over 44 megabytes — amounting to a record-setting 200 megabytes of high-definition video, audio, images, and text. According to a rough estimation if we can successfully handle the data via DNA, then *the current data across the globe can be stored in a small glass*.

Recently **University of Washington** and **Microsoft research team** did not only store the data in DNA but also recovered it successfully. These are the three images which they used for the storage and recovery:-

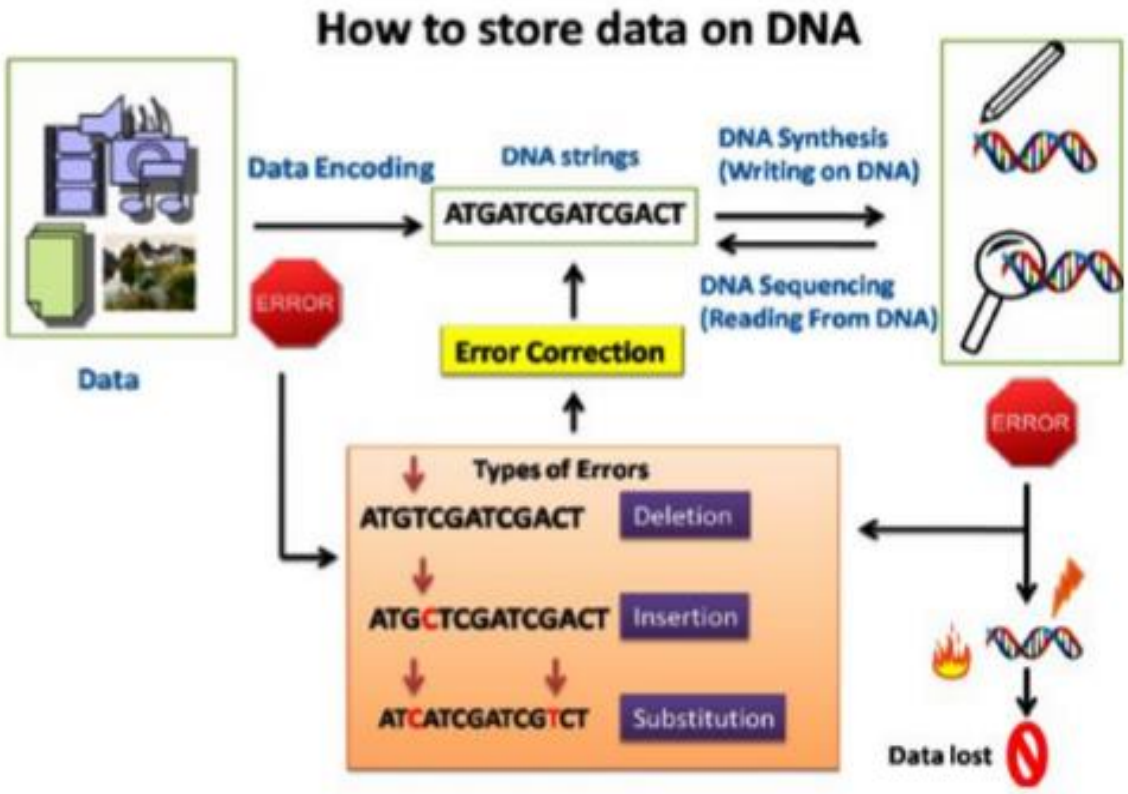
PROCESS INVOLVED -

1. The digital data is converted into binary form i.e., 1's and 0's . This process is called **binarization.**
2. Then the binary code is **encoded** into nucleobase code.
3. Then the artificial DNA is **synthesised.**
4. For retrieval, **Sequencing** is done.
5. Then, **Decoding** from nucleobase to binary code is done.
6. Lastly**,** Data is **Read** from binary code.

WHY DNA?

- Huge amount of data in very less space
- No ejection of heat hence no need of cooling
- Data is stored for very long period of time without being effected

This technology is being developed to overcome the large cost and slow process of data retrieval .This storage will be soon applied in data centres across the globe and later on will be used in place of HDD and SSD.



MUSIC FOR EVERYONE: CHROME MUSIC LAB

Shreya Bhatnagar, B.Sc(H) Computer Science , I Year

Google Chrome is one of the most widely used browsers for internet surfing. All of us use Chrome for one purpose or the other. However, there are many more interesting features provided by it that we don't know about. These features can help in learning and can increase our creativity multi-folds. One such add-on to Google Chrome is the Chrome Music Lab.

Designed as the part of Google Chrome Experiments, a series of projects that were designed to test the limits of the browser and make it more interactive, Chrome Music Lab is an innovative tool to learn and create music at your browser without any additional add-ons. It is a "dream come true" for any music enthusiast who has the ability and skills to create music but is unable to do so due to the lack of resources. The Chrome Music Lab provides experiments to understand and learn the various aspects of music and gather knowledge about its interconnection with mathematics, science and arts. It acts as a platform for teachers to engage students in healthy and interactive discussion about music and helps the students to understand music in a better way. What's more, you don't even need to create an account. You can just open up the browser anywhere and start working instantly.

As of now, the Chrome Music Lab hoists 13 experiments which are related to music one way or the other. These experiments and their brief details are listed below:-

- *Rhythm* – Rhythm allows the users to create their own repeated patterns of music and sound. It is built by George Michael Brower.
- *Spectrogram* – Spectrogram presents the visual representation of the music spectrum. Using this program, you can view the spectral shapes of various instruments, can create your own spectral shapes and can also view the spectrum of your own voice. It is created by Jeramy Morrill and Boris Smus.
- *Chords* – Chords allows the user to play a group of three notes, as a harmony together. It can help vocalists to use it as a base. It is developed by Yotam Mann.
- *Sound Waves* – This code helps the user to see the pattern of how a particular sound wave travels in air. It is created by Mark Lundin.
- *Arpeggio* – This allows the user to play the notes of a chord one at a different patterns. It is built by Yotam Mann.

- *Kandinsky* – This code is based on the famous artist Wassily Kandinsky who believed that painting is equivalent to making music. This program lets the users to turn their painting into music. It is built by Active Theory.

- *Melody Maker* – As the name suggests, this feature helps to make melodies and play as well as edit them. It is designed by Yotam Mann and Eric Rosenbaum.

- *Voice Spinner* – it is used to record and change the speed of the sound. You can record your own voice and can play it fast, slow, forwards or backwards. It is developed by Yotam Mann and Eric Rosenbaum.
- *Harmonics* – Harmonics is a well known principle of physics. This experiment allows the user to understand harmonics and its use in music. It is developed by Alexander Chen and Yotam Mann.

- *Piano Roll* – It works on the principle of the good old piano roll which is a perforated paper roll that is fed into an instrument to control the key movement. It shows the procession of the notes in the piano whose sequence can be changed by the user. It is built by Yotam Mann.

Oscillators – This code produces oscillatory sounds by vibrating at a particular frequency. It is developed by Song Maker – This is the latest addition in the Lab. It allows the user to make their own music and also allows vocals and MIDI keyboard.

All these experiments have an open source code that can be used and modulated according to the necessary requirements. Chrome asks the developers all over the world to code on and provide more interesting and new experiments that help to test the versatility of the browser and provide the audience with fun and interactive platforms.

Chrome Music Lab is the true example of how something can be fun and interactive and can serve as a brilliant platform to provide knowledge and develop understanding of a certain subject in the audience. It encourages everyone to find out creative methods to implement new things that can serve as a great source of learning to the masses.

The Chrome Music Lab provides experiments to understand and learn the various aspects of music and gather knowledge about its interconnection with mathematics, science and arts.

ACHIEVERS

'Spectacular achievement is always preceded by unspectacular preparation", said Robert H. Schuller.

The students of Keshav Mahavidyalaya proved it yet again by bringing laurels and adding achievements to its name. This year along with 24 placements, many others have secured their seat in reputed institutes for post graduation. Students have also participated in various co-curricular activities and stood as achievers due to their hardwork and determination. These students from the Department of Computer Science have contributed to the college and have set an example for the batches to come. Following is a small compilation of all the Achievers of the Computer Science Department:

Academics

Name	**Entrance Exam Cleared**
Abhilasha Gupta	DU M. Sc
Mohit Arora	DU M.Sc, BHU M.Sc, IP MCA, DU MCA
Ashish Tyagi	DU M.Sc
Natasha Malik	BVICAM MCA
Sakshi Kukreja	IGDTU MCA
Yashvi Verma	DU MCA
Sanchi Chawla	DU M.Sc
Rahul Arora	CAT, SNAP, MICAT, XAT
Mohit Kandpal	IP M.Sc, IP MCA
Shivanshu Sharma	IP MCA
Tushar Garg	NIMCET, JAMIA MCA, HCU MCA, IP MCA, BITS MCA
Pooja Singhal	NIMCET, IP MCA
Aakash Dabas	DU M.Sc

Yogesh Kumar	DU M.Sc, BHU M.Sc
Swapnil Gupta	M.Sc
Sakshi Vij	IP MCA, IGDTUW MCA
Vishad Upmanyu	DU MCA
Shilpi Pandey	NIMCET
Tarun Mudgal	GATE, Google Summer of Code 2017-18
Anmol Agnihotri	GATE
Suman Kumar	NIMCET, Hyderabad University MCA, IP MCA, KIIT MCA
Abhinav Kumar	GRE, TOEFL
Aanchal	IP MCA
Atul Mittal	DU M.Sc
Ayush Malik	DU M.Sc
Charchit Nim	DU M.Sc
Jaideep Sagar	DU M.Sc
Pushkar Gole	DU M.Sc
Shubham Garg	NIT MCA
Sumedha Mittal	IP MCA
Vasudha Sharma	Chennai Mathematical Institute MCA
Vineet Karakoti	Uttarakhand University M.Sc
Vishad Upmanyu	DU MCA

Extra Curricular Activities

Name	Year	Name of the Society (Including cultural society)	Position bagged in any event
Garima Dhingra	II	Maniera-The fine arts society of Keshav Mahavidyalaya	- Bagged 2nd position in Trashion-Newspaper Dressing from Trash
Kritika Kaushik	II	Vagmita (Poetry Society)	- 1st position in khwabeeda: slam poetry event organized by Shivaji college
Himansh Pandey	II	Anhad - The Music Society of Keshav Mahavidyalya	- Antaragani (Annual Cultural festival of IIT Kanpur) - 3rd position in Instrumental Solo Competition. - Mood Indigo (Annual Cultural Fest of IIT Bombay) - 3rd position in Instrumental Duet Competition. - Tarang - Annual Cultural Fest of Lady Shriram College (DU) - Special Mention in Instrumental Solo Competition.
Mohit Dagar	II		- Multi-Sport Athlete who went for inter university Games this year in Ball Badminton
Samridhi Agrawal	II	Maniera	- 3rd position in the rangolimetry competition organized by the Lakshmi bai college
Garima Dhingra	II	Maniera	- 3rd in Rangoli competition Rangometry Mathletes at Lakshmibai college

Uday Pratap Singh Chauhan	II		- 5 gold and 2 bronze medals in Pandit Deen dayal Upadhyay UP State swimming championship
Radhika Chhabra	II	Nrityaang	- Consolation prize, Udaan
Shivani Gangwar	I	Advaita	- AIIMS HEALTH FEST, won first position in group dance competition
B M Vinjit	III		- 3rd position in quiz competition in Delhi-Kerala heritage fest 2017 conducted by Govt of NCT New Delhi and Govt of Kerala. - Secured 1st position in English elocution conducted by Janasanskriti in 2017 - Secured 1st position in English Essay writing competition conducted by Janasanskriti in 2017 - Bagged 2nd position in quiz competition held by Janasanskriti in 2017.
Harshita Hassani	III	Maniera	- Second prize in TRASHION, organized by IIT Bombay. (mood indigo'15) - First prize in IMPASTO, organized by AIIMS(pulse'16). - Consolation prize in Essay writing competition held at Sri Aurobindo college. (Jan'18) - First prize in TRASHION, organized by Aryabhata college (Scimonoce'18).
Saket Taneja	III		- 61 rank (all over India) and felicity (breaking, IIIT BANGALORE) - 86 rank (all over India) and DRDO CTF (government event) - 181(world ranking) and insomni'hack 2018
Samiksa Chugh	I	Shades- The Theatre Society of Keshav Mahavidyaya	- 1st Position in Mime at Antaragni, The annual fest of IIT Kanpur. - Participated in the street plays which was affiliated with government to spread the awareness among the people about harmful effects of consuming drugs.

Mohit Uniyal	II		-First position in event design-o-web (Web Designing) at Saheed Raj guru college of applied sciences for women -Third position in event App Combat (Android App Development) at Deen Dayal Upadhyaya college -First position in event IT Web Page Design at Mata Sundri college for women -First position in event Hardcode (Coding event) at Saheed Raj Guru college of applied sciences for women -Second position in event Hack-kar (Hacking) at Saheed Raj guru college of applied sciences for women
Aanandita	II	Nrityaang - Indian Dance society	President of Nrityaang - The Indian Dance society - 1st position in Duet dance at Symaroh - Symbiosis Centre for - Management Studies - 2nd position in Solo classical dance at Vivekananda College - 2nd position in Duet dance at Bhim Rao Ambedkar College - 3rd position in Duet classical Dance at AIIMS - 2nd position in Duet dance competition at lingaya's LDIMS - 3rd position in Solo dance competition at lingaya's LDIMS - 3rd position in Duet dance competition at JIMS - Public Performance of first annual folk dance production by Nrityaang - "Lavanya" at FIRST INTERNATIONAL KALA MELA, 2018 , organized by LALIT KALA AKADEMI, MINISTRY OF CULTURE, GOVT.OF INDIA. - Consolation prize in Folk dance competition at Udaan Utsav 2018
Vanshu Batra	III	Maniera- The Fine Arts Society of Keshav Mahavidyalaya	- 2nd position in newspaper dressing at Shaheed Raj guru College for Women - 2nd position in face painting at Bharti college

Placements

Name	Name of the company
Sarthak Kanodia	Z.S. Associates
Shubham Singh	Edustoke Pvt. Ltd.
Tarun Mudgal	OCharge
Kunal Dargan	AITOE LABS, Mumbai
Sushma Yadav	Aricent
Vaishali Gera	Grappus Technologies Pvt Ltd
Sakshi Yadav	Collegedunia
Rahul Negi	Aricent
Sachin Ahuja	Indus Valley Partners
Sarvesh Rawat	Surewaves MediaTech Private Limited
Sumit Dhiman	Mindtree
Saksham Khurana	TNine Infotech
Nishi Aggarwal	ZS Associates
Shashank Uniyal	Lucideus
Tushar Yadav	Aricent
S Revathi	Aricent
Shivani Monga	Robotic Wares Innovation
Lalit	Bussan Auto finance India pvt ltd.
Vishal Sahu	ZunRoof Tech Private Limited
Archa Jain	FlexiEle
Chesta Soni	Tyroo
Rashika Jain	Vest
Rupal Sharma	Accenture
Nidhi Sharma	Progressive Infotech

WHY CHANGE THE CANVAS, CHANGE THE QUOTE

Shreya Bhatnagar, B.Sc(H) Computer Science, I Year

Have you ever wondered how wonderful it will be to have an ever changing canvas that floats with your ideas, emotions and moods? What's more, you will be able to adorn that canvas and flaunt it out for the world to see. That is exactly what is happening in Hyderabad where a bunch of software and hardware engineers have devised a method to print out an ever changing spectrum of clothing that can showcase whatever you want with a swipe of your fingers. How, you may ask. The simple answer…Soft ware and Electronics.

Broadcast Wear, a Hyderabad based start-up, has started manufacturing a line of tees that allows you to share your thoughts in any way you like. They have created the world's first programmable T-shirt that displays what you like it to. The messages on this T-shirt are controlled by your very own mobile phones that, through a software, can change the message displayed on it to anything you like. This revolutionary design allows the user to portray their thoughts and emotions in a funky, fashionable and exiting manner.

The basis of these ever changing messages is an amalgamation of hardware and software. The design for the T-shirt contains SMD (Surface Mount Devices) LEDs arranged onto a cotton cloth using a special chemical process. The entire panel of 800 LEDs is just short to an A-4 sized sheet that serves as the board to display the message or images using an application developed by Broadcast Wear itself called the Broadcast app. This application makes use of Bluetooth to connect with the circuit on the T-shirt to transfer the information. The entire circuit is powered by a 1,500 maH battery that runs it for six hours. The use of cotton clothes and SMD LEDs makes

the entire clothing comfortable and light to wear. What's more, you can wash it without encountering the risks of shock or circuit failure as it is waterproof and failsafe. You can activate it by just a touch and change the entire look of your clothing literally by the swipe of your fingers.

The co-founder of the company, Ayyappa Nagubandi, believes that clothing is the ideal platform for anyone to express their feelings and this T-shirt fulfils that purpose. He, himself being a computer programmer and holder of 12 patents, identifies himself to be a believer. The idea to create such a line of clothing, he tells, came from a discussion that he and his wife, Mahalakshmi Nagubandi , were having regarding the different clothing options available for men and women. Mr.Nagubandi, being an entrepreneur since the age of 12, is currently working on his third start-up. Not being fazed by lack of Indian investors, he went on to pursue his idea and by gaining funds through Indiegogo campaign, designed the basic layout for this T-shirt.

Soon, we will be able to wear ever-changing messages to portray our inner-being, to display what we want to and even advertise using a mobile platform.

These T-shirts are yet to be in circulation and mass production. It takes an entire day to create the circuitry for one T-shirt without any mass production. That is why the supply is not enough for the clothing line to arrive in the market place. Then there are affordability concerns. A T-shirt, with this advanced circuitry, has the cost of $39 to $59 which tends to be between Rs.3000 and Rs.5000 in India. It is practically impossible for the mass to afford such expensive T-shirts when they have much cheaper options available. Thus, affordability and availability remain the primary concerns regarding the mass circulation of this catchy tech piece of clothing.

Apart from that, there have been some concerns regarding the radiation emitted by the circuitry and hacking issues leading to discomfort. On this account, it has been stated by Nagabundi that the LED itself is very thin and doesn't generate any radiations greater than the normal radiation level. The technique of encryption used to send messages between one specific T-shirt and mobile phone solves the issue of hacking.

Nagabundi says that he wants to change the way people wear clothes. This fresh piece of tech is a proof of how fast we are growing as a nation and as a science community as whole. It is a proof of how programming can change the clothing style and make it accommodating and refreshing. Soon, we will be able to wear ever-changing messages to portray our inner-being, to display what we want to and even advertise using a mobile platform. Broadcast Wear serves as a great example for start-up aspirants.

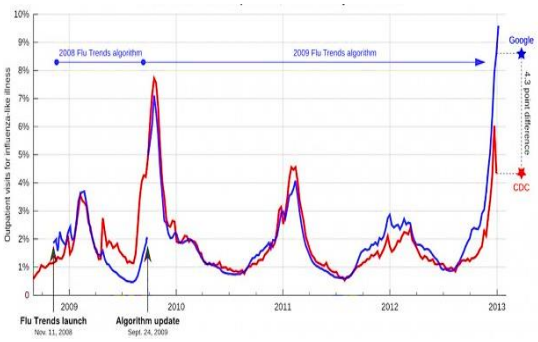
It encourages them to know their minds and understand that no matter how small or puny or non-substantial your idea might seem at that moment, all you have to do is to go forward and find a method to convert it to a working model. You, like Nagabundi, can be an independent entrepreneur and can make such advancements in the field of technology and science. After all, nerds who turn books to companies are the coolest (richest) nerds in the world.

BIG DATA HUBRIS

BIG DATA DOESN'T MEAN GOOD DATA

Tushita Chadha, BSc(Hons) Computer Science III year

In distant past when the world had just begun to delve into an intriguing new term Big Data, Google had already moved a step ahead- experiment with it and put big data to a good use. This well reputed firm decided to use its magnanimous collection of data and tried to predict when and where will the next epidemic happen. Google flu trends (GFT) was a program to provide real time monitoring of flu cases and accelerate prevention process. A noble thought indeed!



Its mechanism included searching previous trends by obtaining data from CDC (centre for disease control and prevention) and matching current individual flu related search queries to predict the next region going to be hit with influenza like diseases. The project was supposed to observe search pattern of people, tracing back their IP addresses hence their locations and then aggregating the data to predict the flu affected regions.

However in a rather tragic turn of events, GFT put a halt to its prediction streak and missed out the foretelling of Ebola pandemic. Accuracy of search results plummeted to a level where GFT indicated flu in double proportion than the actual (predicted 11% regions in America to be hit with flu whereas actual statistics turned out to be only 6%). Another Google feature "suggested searching" was considered culprit for GFT's fiasco because people with no sign of a disease also searched for certain epidemic related keywords when they encountered the options in suggested searching. It was then observed that having abundant data doesn't equate to having accurate, meaningful data. From here we learn about Big Data Hubris-a term popularly coined after failure of Google

Flu Trends-the implicit assumption that big data are a substitute for, rather than a supplement to, traditional data collection and analysis. In simple words, just crunching data with various algorithms without keeping in mind the traditional methods is an unintelligent approach.

Another major concern cropped up about privacy of an individual's data. There have been deals with researchers and firms where methods of analysing data is being done but securing sensitive private information remains the work on developing more reliable top priority.

HYPER THREADING TECHNOLOGY

Gaurav Sharma, BSc(Hons) Computer Science I year

Hyperthreading technology had revolutionary impact on the processing of data in CPU after multicores evolved.It is developed by Intel that increases the processing performance of a CPU core in a magnificent manner.It is first introduced by Intel back in 2002 and debuted on the Pentium 4 and Xeon processors since then it had been evolved a lot for the past one and half decade.It implements Intel's simultaneous multithreading(SMT) used to improve parallelization of processing.Now, it is also being implemented by AMD.

Intel has designed several processor technologies that enable parallel processing when running multi-threaded applications simultaneously.Before starting let's have a look at what actually is a core?*A core is a unit*

overshadowed the slow processing limits.Multicore processors involve multiple physical processing units inside a single CPU chip.Intel evolved dual-core processors which enables two threads to be fully processed in parallel in their own processor cores and then came octa-core processors and recently released some more advanced one.This approach had a huge impact on the processing of tasks.Now a CPU can process multiple threads simultaneously i.e., **parallel**

processing so more the cores better will be the result for same configured CPU.

Still stuck somewhere … Don't worry I will make it easy for you.Consider a real-world scenario , you are eating a bite of food with a single mouth and can only grab the next if your mouth eaten the currently present bite ,let's view the same from the vision of CPU,a single core (single mouth in our case) can process one thread at a time(i.e., eating the bite of food) and can only process next thread after finishing the present one(i.e., grabbing the next bite).Now, imagine we have multiple mouths, from one we eat food simultaneously from other we can do other tasks like drinking or talking.So more the mouths i.e., more the physical cores more threads can be processed simultaneously.

The biggest concern of designers is the maximum utilization of CPU cycles and to further increase the processing in CPU and then Intel introduced the Hyper-Threading Technology which has a dramatic change in processing.

But the biggest concern of designers is the maximum utilization of CPU cycles and to further increase the processing in CPU and then Intel introduced the *Hyper-Threading Technology* which has a dramatic change in processing.With hyper-threading, the operating system will recognize each physical core as two virtual or logical cores.It virtually doubles the number of cores that are on the CPU.When I am saying doubling the cores virtually then what do I really mean?Doubling virtually means we are not manufacturing more physical cores, the physical cores remained the same but their utilization is done in such a manner that they are partially behaving like if we doubled them.Intel hyper-threading technology enables two threads to be processed in a single processor core, allowing partially parallel execution and twice as many threads to be processed in parallel. So, a dual-core processor will act as a quad-core processor from cpu's frame of reference. Each virtual core is independent of the other i.e., if one got halted or interrupted then other will still work normally.So, **it increases the number of independent instructions in the pipeline.**This removes the idle time of CPU making it run more efficiently.

To take advantage of hyper-threading, you have to run applications that take advantage of multi-threading technology.Heavy applications like video editing, video encoding,3D rendering etc will take full advantage of it.It provides fast response times for Internet and e-commerce applications, enhancing customer experiences.Increase the number of transactions that can be processed simultaneously.Utilize existing 32-bit application technologies while maintaining 64-bit future readiness.Improve productivity by doing more simultaneously without slowing down.But lighter applications like loading a web page will not be much affected by hyper-threading.

ALUMNI SPEAKS

KMV is like a treasure which is unknown and hidden from everyone. As soon as I got in, I started discovering the surprises it had packed in for me.
Show your skills and see how it uplifts you and makes sky the limits!
Being a member of Blitz- The CS Society gave me chances to get involved in events, organise them and have that hint of fun that is expected from a college.
It gave me the opportunity of heading the first e-mag edition and that has done wonders in boosting my confidence and skills. This helped me grow and has nurtured my skills to make me a better person today.
All these years of college, exposure to new ventures had become a common feature of our daily lives.
The constant support from the faculty works as a cherry on the cake.
Even if given a chance, won't replace these years for anything in the world!

- Natasha Malik

My experience in Keshav Mahavidyalaya has been once in a lifetime kind of experience. This place has helped me evolve on so many grounds. I have played many roles here. In my 1st year, I have worked as a Volunteer for Blitzkrieg. I became the creative head in the 2nd year and held the same position in 3rd year as well. I was the Vice President of Maniera- the fine arts society. This place has provided me ample opportunity to explore my interests and get better at them. All the working experience has helped me gain confidence and leadership skills. I have learnt how to deal with work and people and how to work in a team. All these lessons will stay with me forever. I am and will always be grateful to the institution for each day that I have spent here.

- Abhilasha

Life at kmv has been a great journey of 3 years. For me, Blitz wasn't just a society but the gist of my college days. From being the volunteer in the first year, to being the deco head for two consecutive years, it has been a rollercoaster. The constant encouragement and guidance from the faculty is what makes this ride worth it.

It's kmv and its bling that has made me what I am today and I feel great pride in being the alumni of this college and encourage students to feel that sense of pride in being a part of this family! Alisha

It's that time of the year, posters for BLITZKRIEG are all over the social media bringing a deluge of memories with it. A family away from home, those 3 months spent preparing for the annual fest every year are among the best memories of my 4 years at KMV. BLITZ allowed me to form bonds of friendship that will last a lifetime and at the same time helped me grow immensely as an individual. Whether it be preparing the seminar hall on the penultimate day in anticipation of the event or starting looking for sponsors even before the session started, it all added upto one day set up by efforts of many people and many months. Looking back on it, I realise that BLITZ thought me the most important lesson of my life 'When you enjoy what you do, work becomes play'.

- Sarthak Kanodia

It was just a few months ago when I with my co-mates were brainstorming our minds on how to prepare ourselves for the upcoming events of Blitzkreig---with all the buzz and focus on giving our best, and do best for our society. Now that I look back on it, I finally realise how important it had been for me, not only at an academic level but also on an emotional and personal level. When you become a part of something big, it enhances your mind and personality in ways you thought were impossible. You come across people with innovative minds; you come to know your teachers and professors in a better way. But most importantly, you get an opportunity to create and strengthen your bond with your seniors and juniors. It gives you memories for a lifetime---reminiscences to cherish. I'll always be thankful that I joined Keshav Mahavidyalaya and became a part of Blitz.

- Pooja Singhal

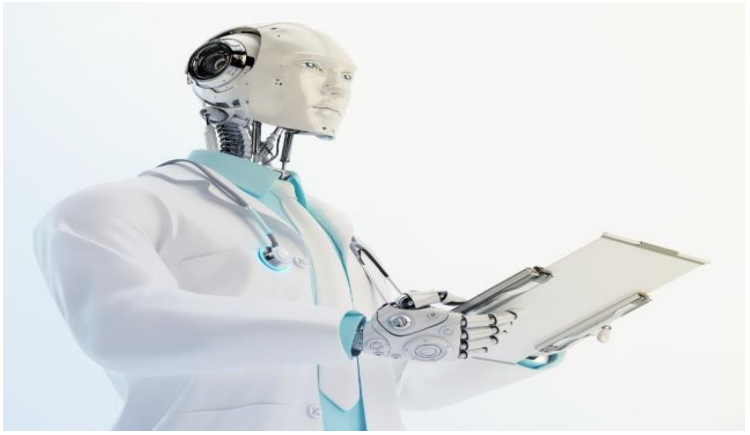
My journey in Keshav Mahavidyalaya has been very exciting and fun filled. I have learnt a lot from the people here. Being the volunteer for blitzkrieg in 1st year, I realised that can be fun to work. I became the organiser in 2nd year and it was a job of responsibility. It taught me how to work in a team. In the 3rd year, I became the creative head and that is where I learnt to be a good leader. I have enjoyed everyday here with my friends and classmates. College life has been one of the best phase of my life as yet. I am and will always be grateful to this institution for each day that I have spent here. Ashish Tyagi

WILL ROBOTS SOON REPLACE DOCTORS IN HEALTHCARE ?

Shikha Bisen, BSc(Hons) Computer Science III year

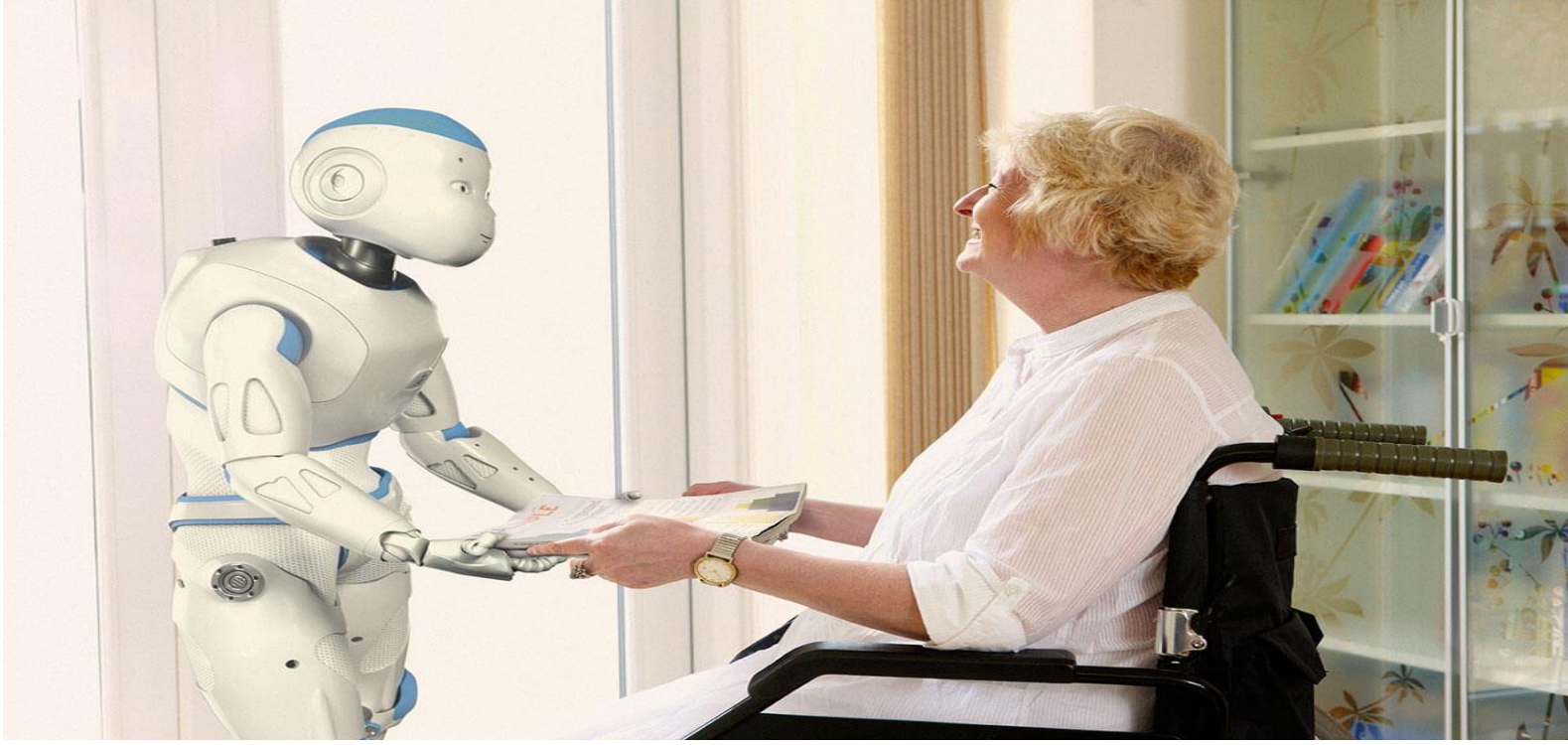
From transforming human lives to operating upon the body and understanding the working of human brain, robots have played a pivotal role in healthcare and medicine domain. It's high time to rise to the challenge if the robots can replace surgeons in the operation theatre or doctors in hospitals. Well, it appears to be a reasonable possibility, as the medical field is known to embrace the latest advancement in applied sciences. Let's glance over some of the developments that have been made so far to find out the answer.

Some companies like Babylon Health have been working to incorporate Artificial Intelligence (AI) to analyze patients' symptoms and provide the results on their smartphones through chatbots. A chatbot (also known as talk bot, chatterbot, or Artificial Conversational Entity) is a computer program, which conducts the conversation via auditory or textual methods. The results of diagnosis by these chatbots turned out to be better than that of doctors or nurses! The tests by the company showed that the nurses were correct in 73.5% of cases and the doctors achieved the success rate of 77.5% whereas the computer was accurate in whopping 90.2% cases.



Similarly, the computer outperformed doctors on the time consumed for diagnosis by over 100%. Derma Compare is another application that diagnoses skin cancer better than a doctor. The smartphone app sends the pictures taken by a device to a cloud-based system, which uses AI to analyze the pictures in order to predict melanoma moles on skin. It is believed that AI will strengthen medical imaging diagnosis and will enhance hospital workflows for better medical care.

Suturing, the process of sewing open wounds and incisions is an important part of surgery and also one of the major time-consuming aspect of the process. Amalgamation of manual and automated suturing has reduced the length of surgical procedures as well as made it more accurate and efficient. Robots are more than just some medical errand boy; they are stupendously conducive for carrying



out the surgeries that necessitate extra precision. Of course, robots are not autonomous entities as the surgeons monitor and control its actions closely.

mostly used for are called minimally invasive surgery. In such surgeries, robotic arms are used to perform miniaturized cuts instead of making large incision.

Apart from computer aided medical diagnosis and surgeries, robots are also used in other branches of healthcare, such as psychology. For instance, a chatbot a duration, through regular conversations. It then makes productive conversation and offers helpful insights to alleviate depression, anxiety and other psychological problems one can develop. There's no doubt that Robotics and AI are

going to augment the Healthcare domain. But can they replace the human doctors? The answer is quite subjective. Although the human intervention and judgment are inevitable due to high stakes, the furtherance of robotic technology has aided surgeons as accompaniments to the human minds, known as Woebot, uses Artificial Intelligence to track the mood and understands the psyche of the subject.

Automation will make the world better by making the procedures convenient, cheap and accessible to the masses. It can raise the opportunities for those who realize the potential held in these technological advancements and are smart enough to seize them. The tasks which can be accomplished by programmed bots will reduce the dependency on the human resource but when it comes to traits including empathy and wisdom, robots can't possess such sophisticated intellect anytime soon!

BUSINESS ANALYTICS EXPLAINED FOR ASPIRING LEADERS

Shreya Bhatnagar, BSc(Hons) Computer Science I year

Data Analytics in a nutshell

Data Analytics, as the term itself suggests, simply refers to the analysis of data. It includes processes through which we can extract, classify, categorise and understand big data which is difficult for us to understand using conventional data-handling methods.

There are many types of Data Analysis depending on what type of data is being used as well as other parameters. The Data Analysis technique used for assimilation of Business related information is called Business Intelligence. Another such very famous technique is Data Mining that uses the data for either predicting the future or analysing the past by looking into Data patterns on a very large scale. The statistical division is done as Exploratory Data Analysis (EDA) and Confirmatory Data Analytics (CDA) where the former works on the principle of exploring various patterns and relationships in data and the latter works on the basis of proving or disproving a hypothesis.

Data Analysis is done in various steps which include collection and cleansing of data, checking the relevance of quantity and quality of the data, preparing a sample and then running an analysis on it. Finally, the new obtained data is checked for satisfactory results.

Data Analytics in itself is a vast field. It has various sub-fields and an inter-related chain of other important terms that provide relevance to it. Two such terms are Data Science and Business Analytics. It is crucial to understand the difference between all three in order to understand the entire concept

Difference between Data Science and Data Analytics

Science broadly refers to every method that we have in order to understand our Universe and its actions. Extending this concept for the ever expanding universe of data, Data Science refers to the assimilation of every tool and method required to take part in understanding and managing the data. Data Analytics, on the other hand, refers to the specific set of tools that can be used in a more focused and specialised manner. It can be called as a more narrowed

down area of Data Science that talks about selection of tools and methods to find a proper management of data.

It is very necessary to understand the difference between Data Science and Data Analytics as it helps the companies to divide the labour accordingly and recruit people accordingly. It provides high specification and an overall view of the data around which the companies have to work. Using an amalgamation of Data Science and Data Analytics, Businesses are able to get a 360° vision of the Data and are able to provide good management platforms for handling it.

Business Analytics

All of you must have seen the Winter Soldier. Business Analytics works like Hydra. The main basic purpose of Business Analytics is to find new ways , methods and policies to drive business planning by analysing and gaining insights from the old data, its behaviour and patterns. The data patterns of past serve as a push to predict the patterns of the future. This is particularly helpful in formulating new policies and patterns to warrant a better output and increase profits in the future.

Business Analytics and remains the most widely used in the corporate world. Business Intelligence provides the information regarding an event and Business Analytics helps to decode it in order to predict future actions.

Hence, the basic difference between Data Science, Data Analytics and Business Analytics is the place where they are used. There exists a miniscule difference between them but all three are very important tools in building up a proper data management tool. Hence, it is imperitive to understand all three of them.

Tools used:-

R Programming Language Java JVM Apache Spark Apache Storm Tableau Splunk PIG HIVE Python Excel SAS MySQL Oracle Hadoop

VIRTUAL LEARNING : HUNT THE WEB

Gaurav Sharma, BSc(H) Computer Science I year

Since the inception of printing press, books have been the ultimate knowledge provider. But now-a-days, you cannot learn everything from books as you cannot get an interactive platform to build your own tools and learn by yourself. This interactive learning is provided by online interactive platforms where students can learn in a virtual environment. Some of those websites are as follows:-

1. **www.udemy.com**

   Right now, udemy is the world's leading online tutorial. It provides detailed video lectures on thousands of topics which include technical, non-technical, health and fitness, music, photography, marketing and several others. The tutorials are paid but the price is very reasonable. So if you want to learn something out of the track, then this site is the best match for you.

2. **www.geeksforgeeks.org**

   geeksforgeeks provides stuff related to programming. It houses textual tutorials on programming languages like C, C++, Java, Python, PHP as well as algorithms and data structures. It also has a seperate section for quizzes and puzzles to encourage participation and a student corner which includes projects, placement courses and a lot more.

3. **stackoverflow.com**

   stackoverflow is the top site for programmer geeks. It is a community where coders from all over the world solve programming problems from very basic to extreme ones. It delivers a detailed programmed solution to any non-working code of any programming

language. It is very helpful for those who are new in the programming field and get stuck numerous times in between code. It is free of cost.

4. **www.javatpoint.com**

As the name itself indicates, this website is related to java programming language but it also has tutorials for numerous other languages like C, C++, Python etc. as well as platforms like node js, angular js etc. It also provides tutorials on operating system like linux and databases. This website is a blast of computer knowledge and provides a great exposure to the learners. It provides text documents and is free of cost.

5. **www.codechef.com**

codechef is the most popular website for competitive programming. It provides online programming challenges to programmers. No matter what is your performance in these challenges, but one thing is for sure that it enhances your programming skills. The competitions are for various languages like C, C++, Java, Python etc.

6. **www.techopedia.com**

Techopedia is an IT education site. It provides tutorials and articles on technical topics. It also provides solutions to tech based problems. It was started by the father-and-son team of Dale and Cory Janssen.

This is only a small list of such informational and educational websites. There exists a plethora of such platforms that serve as a huge opportunity for students to learn and increase their technological skills. So, dive right into these websites and come out as a better programmer.

SMOG INTO DIAMONDS

Smriti Sharma, B.Sc (H) Computer Science, III Year

Outdoor air pollution has become the fifth largest killer in India after blood pressure. Carbon, being the main element in greenhouse gases, is capable of forming many allotropes. One of them is Diamond.

Dutch artist Daan Roosegaarde invented a simple and efficient technology to tackle Word's air pollution problem and turn into a thing of beauty. The smoke free project of Roosegaarde will be introduced in China to convert smog into Diamonds. As fascinating as it sounds, the project is simple and easily understandable.

The project consists of two parts. In first part, a 7m tall tower is used to suck up polluted air of the area where it is placed and then clean the polluted air at nano-level. In second part, the carbon particles present in the sucked up polluted air of the smog are turned into diamonds.

According to the survey conducted, these areas are 70-75% cleaner than the rest of the city. In Beijing's smog, the carbon content is 32%, which under 30 minutes of pressure can be turned into diamonds. These diamonds are used to make jewellery and money raised by them will be used to support the development and building more Smog Free towers.

EVERYBODY'S GOT A BUDDY

Shreya Bhatnagar, B.Sc (H), III Year

Humans are social animals and always need a companion. What if that companion was a robot? How would that friendship develop? Will it be feasible for humans?

Computer Scientists all around the world have been trying to develop robots which would help in everyday tasks and will be around to give companionship to humans. One such robot, developed by Rodolphe Hasselvander, is named BUDDY.

BUDDY is the ultimate human companion robot which provides everyday facilities and helps to improve the lifestyle of its owner. It can protect your home; entertain your children and helps increasing companionship by providing connectivity with your loved ones. Being open source, its source code can be modified and updated by anyone. Well-equipped with speech recognition and human detection and tracking, it can interact with *you* almost like a human. One of the most notable characteristics of BUDDY is that he can be a personal healthcare and security companion to the elderly.

Being a complete package of all the essential things you need, BUDDY is the ultimate buddy anyone can desire. These machines are a part of our lives now-a-days and are getting more and more embedded and connected to our lives than ever before. We can never know if this amount of interconnection is feasible or not. However, it could never hurt to have someone like BUDDY.

Shikha Bisen, B.Sc(H), Computer Science, III Year

If you ever need to go on a date with a Girl who talks sensible, intellectually, crack jokes and even pay your bills, well its pretty much possible, even if you are dating SOPHIA-The humanoid AI Robot which works on Mind-cloud. At the recent meet with Sophia in 'Future Investor Initiative' she became the first ever robot to get the citizenship of Saudi Arabia in Riyadh. How does she feel after getting the citizenship? asked panel journalists. She said 'she is very grateful and thankful to The Kingdom of Saudi for this unique and proud distinction.

Of course, everyone has one common doubt about her or rather for the world of AI, that is it threat to the human world, are they going to destroy the human race, will they turn against us and conquer the human world and make us slaves ? Asked with laughter and satire, she interestingly came with some really impressive answers to these so called sarcastic questions.

But yes, we do understand one thing that technological advancements and future initiative innovations are a great thing to understand and for the betterment of the world as a whole.

We admire you Sophia, we welcome you to our world. Keen to know more about you and your capabilities. Not just a citizenship, may you get the global citizenship and become a cosmopolitan, and work for human rights and their development.

Your Personalised Star-Trek Experience: Amazon Alexa

Shreya Bhatnagar, B.Sc(H) Computer Science, I Year

All of us need a personal assistant to catalogue out all the necessities for the day. One such personal assistant available in the market is Amazon Alexa. Developed by Amazon, Alexa is one more step forward in the evolution of AI.

With a number of remarkable characteristics like voice interaction and music playback, Alexa has taken the market into its folds. It houses brilliant facilities like making to-do-lists, streaming podcasts, determining weather conditions and operate on real time data. One of the most notable features of Alexa is the home automation system where it can act as a controlling unit and control various smart devices using its interface. Its functionality can be increased by downloading various additions and updations in its source code called the skill set. Using personalised and developed skill set can help the users to use Alexa for specific purposes which make it a handy tool for everyone.

Developed on the basis of the movies like Star Trek, Alexa provides the complete personal assistant package that anybody could ever ask for. Hence, if you have Alexa, you have a personalised J.A.R.V.I.S. in your hands which is always pretty cool ;).

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Dr. Roli Bansal

Dr. Bhavna Gupta

Dr. Richa Sharma

Ms. Vinita Jindal

Mr. Ravi Kumar Yadav

Ms. Richa Gupta

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Mr. Sumit Baberwal

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Dr. Sumit Kumar Agarwal

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Mr. Arun Aggarwal

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Mr. Manish Kumar

Ms. Rashmeet Kaur Chawla

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Ms. Anuradha Chadha

Mr. Lovkesh Jairath

Ms. Pooja Batra

Mr. Ritesh Gupta

Mr. Akhilesh Sharma

FIRST YEAR STUDENTS

Batch 2017-18

Top line(left to right):Kundan,Dinesh,Kamal kant,Himanshu,Prashant Arora,Vipul aggarwal,Anshuman kumar,Kishan kumar,Nitish,Bharat yadav,Ajay patel,Anshuman bhardwaj,Deepanshu,Abhishek, Moksh Kori,Yashnit Kalra,Harsh tomar,Japesh,Miheer,Keshav,Lakshay

Mid line(left to right): Basant verma,Manu bhardwaj,Divyanshu,Prashant Rai,Rochak Pandey,Pankaj Pant,Yogesh,Priyanshu Tonk, Sanchit Nigam,Prince Sharma,Shubham Kumar,Rakesh,Namit kapoor,Abhishek biswas,Arpit yadav,Madhav kaushik,Ravinder Kumar,Tushar aggarwal,Gaurav Sharma

Last line(left to right): Gourav yadav,Jeevan,Shubhi jain,Pratishtha,Simran,Saloni Gupta,Shreya Bhatnagar ,Siddhi,Varsha nagar,Sakshi nain,Shivani Gangwar,Taniya Narang,Samiksha Chugh,Bhavya Batra,Muskan Goel,Muskaan gupta,Gourisha choudhary,Anjali yadav,Muskaan Arora,Muskaan Aggarwal,Balkar singh,Aatif nisar

SECOND YEAR STUDENTS

Batch 2017-18

Top Line(left to right): Arun jain,Ankit Singh, Himanshu, Chinmay Jain,Ahmed Mustafa Akbar,Jatin Sharma,Anurag Kaushik,Tarun Kashyap, Deepak

Mid Line(Left to Right): Kanhav Gupta, Arshdeep Singh, Nirnay Mittal, Neha Soni, Megha Naithani, Muskan Kathuria,Shivam,Vipin Kumar Malik

Last Line(Left to Right): Vrinda Anand, Rimjhim Vaish, Cecelia Ruby Tirkey, Aanandita Diwan, Muskan Aggarwal, Namrata Agrawal, Divya Singh, Radhika Chhabra

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