ST. XAVIER'S COLLEGE
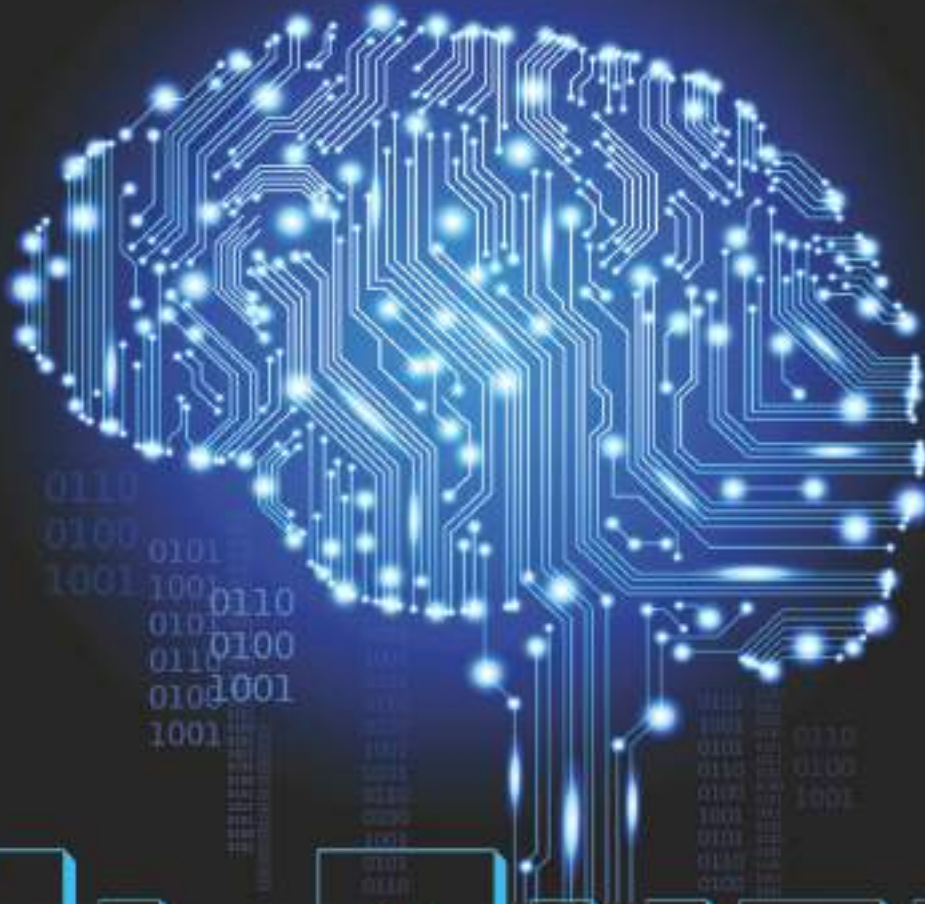## MAPUSA-GOA

DEPARTMENT OF BACHELOR OF COMPUTER APPLICATION

XI-BYTE

WWW.XAVIERSCOLLEGE-GOA.COM   2019–2020

VOLUME 9   ISSUE–1

BACHELOR OF COMPUTER APPLICATION

MISSION

To create ideas that deepen and advance the understanding of computer application and with these ideas develop innovative, principled and insightful software professionals who will change the world. Promote intellectual curiosity, professionalism and IT skills for life-long learning.

VISION

Promote intellectual curiosity, professionalism and IT skills for life-long learning.

Editor

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MR. STALIN D'SA

BCA Non-Teaching Faculty

MR. EDWARD D'SOUZA

ADMINISTRATOR'S NOTE :

Glory and all praises to the Almighty God for all His blessi
bestowed on us during this Academic year.

Technology and in particular Computers have revolutionised the entire world and has made things possible and available at the click of the mouse. Life has been made so much easier

The BCA Department of the College is doing a marvellous job of preparing students to face the job arena with specialised skills. Sincere appreciation and congratulations!

The Department is releasing its newsletter titled "Xi-byte" which focuses on a very pertinent topic of technology affecting our lives. This newsletter is wonderful opportunity to express themselves and share with others their innovative ideas and experiments which will help the society and young scientists to use for various applications

I wish our BCA Department the very best! May they continue to work with the same zeal and dedication in order to make St. Xavier's College proud and pioneer in this field in the days to come.

God bless you.

Fr. Zeferino D'Souza

PRINCIPAL'S NOTE :

I am extremely glad that the Department of Bachelor of Computer Application (BCA) is publishing its 9th issue of its newsletter "Xi-byte" which I am sure, all must be anxiously waiting for.

It is an issue dealing with the activities of the Department by students and faculty during the period from June to October 2019. In addition to academics, our institution gives immense importance to co-curricular activities as they help in the overall development of our students.

Such activities are opportunities to achieve one's aspiration in life. They help collaboration and realize happiness and self-actualisation. My warm wishes to the Editorial team comprising of Rushita, Stalin, Worrel, Aquilla.

God bless us all

Dr. (Mrs.) Blanche Mascarenhas

EDITOR'S NOTE :

The Department of Computer Application is proud to release the 9th Edition of Xi-Byte, the biannual departmental newsletter that highlights the literary and creative steak of the budding programmers. Computers are great at some things but not others. So it's no surprise building computers that are intelligent is complicated. Scientists and programmers are busy trying to make computers have artificial intelligence, the ability to gain and apply knowledge and skills.

Young people who are going to be leaving college might be wondering what career paths they should focus on. And for anyone who is in touch with what is happening in the world and future technology trends, the answer should be obvious. Artificial intelligence is literally changing the way our world operates, we're all dealing with aspects of this tech daily and likely don't even know it.

Predicting the future is now possible with powerful new AI simulations. As with any new technology, whether or not artificial intelligence software will be good or bad for humanity is an open question. Definitely AI will create jobs, for example, programming and fixing robots.

I congratulate all the achievers of 2018-2019, our recent graduates for their performance at university examination and sincerely thanks to all the contributors of this edition, a big thank you to Stalin, to help me in collecting the content and all the others who helped me make this issue a success.

Happy Reading!

Ms. Rushita Verlekar

MACHINE LEARNING

- By Stalin D'Sa
Asst. Professor

Machine Learning (ML) is an application or can be considered as a subset of Artificial Intelligence (AI), which provides the systems the ability to learn and enhance from experience without being explicitly programmed and trained. It emphasizes on the development of computer programs that can access data and use it to learn for themselves. The proves of learning begins with observations of data such as examples, instructions or direct experiences in order to look for patterns in data and make better decisions in the future based on examples which are provided. The primary aim is to enable the system to take decisions at various situations at any given point of time just as a human would do without any human intervention.

A common fictional example of this concept would be the Marvel Studios character "VISION" which was initially just an Artificial Intelligence system called JARVIS (Just A Rather Very Intelligent System) which was a virtual AI Assistant to Tony Stark but later evolves by learning from Tony Stark, Bruce Banner, The Mind Stone etc. into a human like being thus forming an Artificial Neural Network in itself to act and take decisions as a human being would do.

Some Machine Learning methods are as follows:

1.Supervised ML algorithms which apply what ahs been learned in the past to new data using labeled examples to predict future events.

2.Unsupervised MLalgorithms use examples to train, which are not labeled.

3.Semi-supervised ML algorithms fall somewhere in between supervised and unsupervised algorithms as they use data, which is both, labeled as well as that which is not.

4.Reinforcement ML algorithms is a learning method wherein interaction with the environment produces situations which are either success or failure.

Some common ML Applications are as mentioned below:

1.Companies in the financial sector are able to identify key insights in financial data as well as prevent any occurrences of financial fraud, with the help of machine learning technology.

2.Government agencies have multiple resources, which can be mined for identifying useful patterns and insights. E.g. sensor data can be analyzed to identify ways to minimize costs and increase efficiency.

3.With the advent of wearable sensors and devices that use data to access health of a patient in real time. Doctors and medical experts can use this information to analyze the health condition of an individual, draw a pattern from the patient history, and predict the occurrence of any future ailments.

4.Based on the travel history and pattern of traveling across various routes, ML can help transportation companies predict potential problems that could arise on certain routes, and accordingly advise their customers to opt for a different route.And many more….

Technology is evolving at a very rapid rate and it cannot be denied that ML is going to be a major contributor to this rapid growth in the future changing and enhancing the way a lot of processes and methods are being implemented at the current moment.

FUN FACT:

Atwood is a software developer, book author, podcaster and a writer for Coding Horror, a popular blog.

TECHNOLOGY IN MYTHOLOGY

- By Andrea Menezes
F.Y.B.C.A

According to Ryan Fletcher, "TECHNOLOGY by definition means, the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment, drawing upon such subjects as industrial arts, engineering, applied science, and pure science"

In the distant past, however, before any sciences existed, the beginnings ofthe world and of society were explained by MYTHOLOGY. The dictionary defines mythology as the myths dealing with the gods, demigods, and legendary heroes of a particular people. The word myth is often mistakenly understood to mean fiction-something that never happened, a made-up story or fanciful tale. Myth is really a way of thinking out the past.

Mythology is a collection of myths especially one belonging to a particular religious or cultural tradition. Myths are traditional stories about gods and heroes. They often account for the basic aspects of existence — explaining, for instance, how the Earth was created, why people have to die or why the year is divided into seasons.

But can one really begin to assume that technology actually existed in ancient mythology…..

In GREEK MYTHOLOGY,Hephaestus was the god of Metallurgy, Fire and Volcanoes. According to Homer's Iliad, when Thetis, Achilles' immortal mother went to the Hephaestus residence in Olympus in order to request from the God to build a new armour for her son, who was eagerly expecting it in order to fight Hector, she saw artificial women created by Hephaestus, who could not only walk at their own will, but could also bear and help Hephaestus in his walking, as the god's legs were once crippled by Zeus's rage. These artificial women would be called "robots" nowadays.

Euhemerus, a 320 BCE mythologist, claimed that myths are really a distorted reality of past events believed to have taken place.Euhemerus' idea hints that through the years, stories become stretched similar to a tall-tale fish story. Some theorists also believe myths are over-glorified accounts of a person who made such a profound impact on their culture, their story would live on throughout the ages for all to know. Most of the time, myths involve supernatural events or objects unfathomable to exist even to this day. One of the most famous Greek Olympians, Zeus (known to the Romans as Jupiter) the God of Thunder, carried a thunderbolt capable of destroying entire cities in a single throw. Similarly, the Lord of Heaven and mountain god, Indra, who in Hindu mythology was known for his device called the Vajra, or thunderbolt. Interestingly enough, the story takes a twist. Kongo is the Vajra equivalent name in Japanese, but for the trident-shaped staff which belonged to Koya-no-Myoin, a Japanese mountain god. Three cultures who share the concept of an ancient device known as the thunderbolt, capable of mass destruction. Then, as the Kongo emits a bright light to give man wisdom and insight, its power transcends cultures once again, to the Norse god Thor. His destructive hammer, called Mjollnir, symbolized lightning too, but there is a problem. Thor required iron gloves and a belt of strength to wield it.

Modern day science tells us that iron gloves would probably conduct the electricity instead of projecting it outward. There is a possibility the gloves indicate why his hammer would return after it was thrown.

As with many mysteries in ancient oral tradition, perception of those who passed stories down through the generations, mythological devices of destruction distinctly demonstrate the sheer power of the gods on several levels. Poseidon (known to the Romans as Neptune) the Lord of the Sea carried a trident similar in description to the Kongo, but with powers closely related to the sea instead of the clouds above. His trident is said to shake the earth, shatter objects, and manifest both horses and water spouts.

This power resembles current sought after technologies in forms of weather manipulation and is reminiscent of late Tesla research. Tesla claimed to have created an oscillating device designed to tune into structural frequencies, causing those objects to break apart from the vibrations. Witness reports near Tesla experiments talked of the ground and buildings shaking though nothing was proved.

There are other devices mentioned in ancient mythologies which could really exist to this day, lending creditability to the Euhemerism theory. The Norse god Odin and his spear called Grungir was known to never miss its mark. Eerily similar to

TECHNOLOGY IN MYTHOLOGY

modern missile technologies that use pin-point laser or heat guided radar to hit targets without failure. Also, Odin's bow shooting 10 arrows.Every pull could be considered an ancient description of modern rapid fire devices. Even Odin's sword, capable of cutting an anvil in two, is not a far-fetched idea. Apollo's far-shooting silver bow might also be considered a device of the missile launching type except for one issue. His bow could also heal, something of which modern versions are not designed to do. Coupled with the archery are poisoned arrows of Heracles (known as Hercules in Roman), and Ysbaddadan's venomous spears. Both of these present the idea of applying chemicals to enhance their powers.

In light of the above, would it be safe to say that the technology that existed in ancient mythology was an inspiration for modern day invention?

One tends to wonder whether the idea of a flying machine originated from the Greek myth of Daedalus (son of Athena), where he crafted human sized bronze wings for his son Icharus to enable him to escape from the labyrinth.

You have to admit, all inventions whether big or small existed initially as imagination or a fancy in the mind of a dreamer. So, why can't it be that inventors derived their ideas from myths handed down through generations and used years of science and technology to make them reality?Even Prime Minister Narendra Modi connected ancient mythology with contemporary science by claiming that present day inventions had already been materially invented in our ancient past.

So, whether mythology was really the source of modern technology or not, one can definitely conclude that,both science and its discoveries and technology draw on creative inputs from imagination and invention.

Reference:
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2.Daedalus inventions
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KALI LINUX

An OS which not many people actually know about, kali Linux is widely used for, in lemans term'Hacking purposes'. While its more than just hacking through Wi-Fi's; Kali Linux has many more uses,which can be used not only for getting the IP address of other people, but also easy enough to gettheir information. Yes, this isn't exactly ethical, but it's how one uses the OS.

Unlike the other Linux OS, Ubuntu etc Kali Linux has an Inbuilt of 1500 different applications whichhas various uses:Information gathering, Vulnerability Analysis, Web- Application Analysis, password attacks,Sniffing and spoofing are just few of the different 11 heads under which there are manymore software's.Anyone and everyone just require a few

- By Brian Desouza Mello, S.Y.B.C.A

months to know enough of the OS to get basic data of theirtarget.

If we look at a student learning a computer course whether it be BscIT or BCA, a small workshop cangive them 30% information, and if interested one can go into specialization of network security or aCEH Masters(Certified Ethical Hacker).But getting a basic idea of this is more of a requirement. I say this because it gives knowledge topeople as to how their own data can be stolen and what all is done if they are not properly keepingtheir information safe.Kali

KALI LINUX

Linux comes built in which website cloning, which has login pages of facebook, gmail, yahoo andalso a custom one which one can add by giving its URL. And the information is sent straight to theterminal.

A much more significant use of kali Linux is the DOS attack. That is denial of service; it is almost surethat in a movie which has presence of a hacker, it shows how the headquarters are unable to getanything done because of the heavy load.
A denial of service sends numerous numbers of simple requests to the target IP and loads all theports. This is because the computer is programmed to send back requests in order. So if multipleorders are sent ever second the response time is even slow for and actual request.Now this isn't even a big code, it is a simple 1 line, 26 character code followed by the target IPaddress. Yes, it is that simple.
Kali Linux has an inbuilt function which can be put into any apk which on download will give accessto all the files present in the device. APK and exe files too.Lastly, kali Linux can be used to recover files which have been deleted. Some people usually spendmoney to do this, while it can be done sitting at home on the OS.

Kali Linux is a very easy to use OS and all the functions have their own manual built in, it is smoothand can be even booted on a USB or CD. But that is done so that after removing the USB or CD wheninserted back in, it starts fresh with no memory or data of what was done before.

ARTIFICIAL INTELLIGENCE

- By Joshsua Noronha
S.Y.B.C.A

- By David Lobo
S.Y.B.C.A

Brief history

The idea of modern AI was brought about by philosophers who tried to describe human thinking as the mechanical manipulation of symbols. The field of artificial intelligence was founded during 1956, at Dartmouth college, in Hanover, New Hampshire. Those who attended became leaders of AI research for decades. They believed that there would be a machine that was as intelligent as a human in no more than a generation. They had heavily underestimated the difficulty of the project, which lead to them being criticised and having their funding provided by the government get taken away. This time period (1974-1980) was termed as 'AI winter.' Investment and interest in AI started increasing in the first decade of the 21st century thanks to the development and use of machine learning in academia and industries due to the presence of powerful computer hardware.

Some uses of artificial intelligence

AI for good is a movement in which people use AIs to solve some of the world's greatest economic and social problems.

In Agriculture, new AI advancements show improvements in agricultural yield. The AI predicts the time a crop will take to ripen and be ready for picking, therefore increasing the efficiency of farming. Due to an increasing population and demand for food, in the future, there should be a great increase in the yield of food in order to sustain the increasing demand. It is perceived that AI can help reach this demand.

In Aviation, the Air Operations Division (AOD) of the United States Air Force use AI for substitute operators for training simulators, support systems for tactical decision making and mission management aids. Airplane simulators use AI in order to process data taken from simulated flights and simulated aircraft warfare. The computers can come up with the best success scenarios in these situations as the AIs can provide pilots with the

best possible manoeuvres while getting rid of manoeuvres which would be impossible to perform. Multiple aircrafts are required to get good approximations of calculations, so computer simulated flights are used to gather data. These computer simulated flights also help train future air traffic controllers.

In June 2016, a research team from the visual computing group of the Technical University of Munich and from Stanford University developed Face2Face, which is a program that animates the face of a target person and transposes it to the facial expressions of another person. Since then, other methods have been created based on deep neural networks, from which, it was named 'deepfake.'

The 1990s was when one of the first attempts to create basic AI for education or leisure for the public masses. This developed greatly with the digital revolution and introduced people, especially children to a life with dealing with AIs in the form of Tomagotchis, iPod Touch, the Internet and the first widely released robot, Furby. Toy companies such as Mattel have created toys with integrated AI and speech recognition tools, which allow the toys to understand conversations and give responses. AI has developed greatly in video games ever since their inception in the 1950s, modern games employ techniques such as path finding, decision trees, etc. and are used for tasks such as procedural generation.

Does AI pose a threat?

AI is not sentient but merely a tool and therefore morally neutral, it's use depends on the criteria we humans apply to its development. "While AI has the potential to do tremendous good, it can also have the potential for unknowingly harming individuals." One way that AI can cause harm is when algorithms reflect our human biases in the datasets that organizations collect. The effects of these biases can compound in the AI era, as the algorithms themselves continue to "learn" from the data.

One way that AI can realistically cause harm to us is when algorithms reflect our human biases in the datasets that organizations collect such as Facebook, banks, hospitals, etc. Let's imagine, for example, that a bank wants to predict whether it should give someone a loan. Let's also imagine that in the past, this particular bank hasn't given as many loans to women or people from certain minorities. These features will be present in that bank's dataset- Since the AI uses datasets to learn it will process data through human biases. This could lead to the AI to conclusions that women or people from minority groups are more likely to be at credit risks and should therefore not be given loans. So blame human biases not some tool we made.

Technology Quotes to Inspire You Today

"I do not fear computers. I fear lack of them."

— Isaac Asimov

RAY-TRACING: A REVOLUTION OR A FAD?

- By Rohan Ameida
T.Y.B.C.A

Ever since the introduction of Nvidia's RTX line of graphics cards back in August of 2018, it's been a hot topic of discussion for gamers all around the world. So I ask the question in 2019, is Ray tracing the holy grail of rendering techniques or is it a luxury meant to be enjoyed by few

First let's understand what ray tracing is and how it compares to the widely used method of rasterization that is still used in the industry.

While rasterization relies on a vertice information (position of the vertice, colour of the vertice etc.) of triangles and polygons in order to convert the triangles of the 3D models into pixels, or dots, on a 2D screen.
Ray Tracing on the other hand.
The easiest way to think of ray tracing is to look around you, right now. The objects you're seeing are illuminated by beams of light. Now turn that around and follow the path of those beams backwards from your eye to the objects that light interacts with. That's ray tracing. It traces the path of a light ray through each pixel on a 2D viewing surface out into a 3D model of the scene.

Ray-tracing better simulates real light and thus helps achieving close to real life graphics. For years movie makers have been using this method to deliver stunning movies but these said movie makers have huge render farms at their disposal rendering each frame offline and not in real time

So with more consumer grade ray tracing specific cards in the market, is ray tracing gaining any traction in the gaming community? With somewhere between 5-7 games currently supporting ray tracing and about 11 upcoming games to support it, yes it's safe to say that ray tracing is gaining traction.
With only Nvidia currently having cards with dedicated ray tracing cores (AMD having only a patent on their ray tracing cards and no actual products) ray tracing comes at cost. On the lowest end of Nvidia's RTX series, the RTX 2060 starting at Rs. 30,000. Not that bad of a price but exactly affordable either.

Looking at its performance. Test results of the game Battlefield 5 show that the RTX 2060 gives us about 115fps (frames per second) on average with the graphics quality dialed to ultra and running at 1080p (1920x1080) with Ray tracing features off. Keeping ray tracing features on and dialed at ultra we get about 68fps average at 1080p.

Conclusion: Ray tracing has potential. With more and more games supporting it and further refinement and optimisation of the rendering pipe-line along with its accompaniment with rasterization RTX looks like it'll move out of the "early adopters" market and into the "mainstream" market.

LAUGH OUT LOUD

Yesterday i named my Wifi
" hack if you can "
.Today when i woke up it was changed to
"challenge accepted"

TEACHERS

- By Brian Desouza Mello, S.Y.B.C.A

Second parents, as they say Knowledge they give us anyway
No one can find such a dynamo Yet we found the greatest combo

A Leader, The one behind all our goals. A Mother, for students and
colleagues For she will keep u safe, and tease you till the end of day
And will not let you have a single say

Two princesses, who know when and where to take us out
For they have anger when they shout, and love when they talk out

Last, and surely not the least A prankster and with a smart mind
For he can push you to fame And enjoy it like a game
Yet he is the one acts like a cub The one who completes the club

This is a family...
This is love...
For everyone is loved alot
And no-one is ever left out

IT HACK -
How to find hidden files on Infected pendrive

Here I assume your pendrive drive letter as G:

Click on "Start" -->Run --> type cmd and press Enter.
Enter this command. attrib -h -r -s /s /d g:*.*
Now check for your files.

Distinction Students TYBCA
(2018-2019)

Shawn Louis D'Souza	Shreya Gajanan Amonkar	Mahabubi Akbar khaji	Mahato Niteesh Kumar	Pascoal Daniel Fernandes,	Angwyn Rodrigues
Gulzar Mallik	Rupesh Bhogle	Kyle Noronha	Andrew Noel D'Cunha	Raj Saundatikar	Mercia Fernandes

F.Y.B.C.A. semester 1(2018-2019)

FIRST	SECOND	THIRD	THIRD
Mr. Joshua Naronha	Mr. Jonathan D'Souza	Mr. Yoganand Parab	Mr. Vaibhav Kandolkar

F.Y.B.C.A. semester II(2018-2019)

FIRST
Mr. Joshua Naronha

FIRST
Mr. Jonathan D'Souza

FIRST
Mr. Vaibhav Kandolkar

SECOND
Mr. Yoganand Parab

THIRD
Ms. Mariola Mendes

S.Y.B.C.A. semester III(2018-2019)

FIRST
Ms. Asmita Raikar

SECOND
Mr. Rohan Almeida

SECOND
Ms. Joyce D'Souza

THIRD
Mr. Clevino Fernendes

THIRD
Mr. Shawn Lobo

THIRD
Ms. Anliya Mathews

S.Y.B.C.A. semester IV(2018-2019)

FIRST
Mr. Clevino Fernendes

SECOND
Ms. Asmita Raikar

THIRD
Mr. Rohan Almeida

TALK CONDUCTED ON CYBER SECURITY

A talk was organized by the BCA department of St. Xavier's College, Mapusa, on the 20th August 2019, in the BCA Laboratory for the Third Year students on the topic "Cyber-Security". The session was started with an introduction of the Guest Speaker Mr. Nikhil Malgi by Mr. Rohan Almeida and felicitated by Ms. Raisa Pinto.

The speaker elaborated on the various concepts of Cyber-Security and how the loop holes in various applications can help hackers gain access into others accounts.

He went on to demonstrate how this is implemented. He actually hacked into the account of one of the students and also mentioned about a website www.haveibeenpioned.com which tells you the number of times the private data on your email has been breached along with the information regarding by which sites.

The talk proved to be very fruitful. The Class Representative, Mr. Brian Desouza Mello concluded by the giving the vote of thanks.

- Report Written By Dynisha Abreu

Teachers day celebration, on 13th Sept 2019.

Guest Speaker
Mr. Nikhil Malgi
felicitated by
Student
Ms. Raisa Pinto
as a token of
appreciation for
giving a talk on
"CYBER
SECURITY".

on the 20th
August 2019

Talk organized by the BCA department, on the 20th August 2019,