COSCENGERS INSPIRE

2019

Volume – 3

Department Vision

- To evolve into a centre of learning that imparts quality education in Computer Science and Engineering to produce highly competent professionals.

Department Mission

- Impart computing and technical skills with an emphasis on professional competency and human values
- Enrich the learning aptitude to face the dynamic environment of the Computer Industry
- Enhance the analytical and problem-solving capability through contests and technical seminars

Program Educational Objectives(PEOs)

- PEO-1: Apply both fundamental and advanced knowledge to analyse, design and develop innovative computing products.
- PEO-2: Design and develop interdisciplinary and innovative software systems for real-world problems.
- PEO-3: Inculcate soft skills, ethical conduct and an ability to engage in lifelong learning to serve the societal and environmental needs.

EDITORIAL

We are happy to bring out the first issue of the departmental magazine "COSCENGERS INSPIRE" for the academic year 2019. The magazine that is a launch pad for the student's creativity and skills will definitely be embraced by the student community.In this issue the faculty article is on 'Graph Mining 'by Dr. PVLS Jagadamba who has neatly introduced the concept of Graph Mining to the readers. There are two student articles one on the evolution of robotics and the other on convolution neural networks. The article has introduced the concepts in the beautiful manner. This is followed by the regular sections of Technology Review, Know a Scientist, Short Story and Puzzles, Arts. This issue also contains the Contributions and Achievements of the students of the department during the previous semester.We are thankful to the entire department for their continuous support in bringing this issue successful.

FACULTY ARTICLE

Introduction to Graph Mining

Dr.P.V.S.L.Jagadamba
HOD & Professor
CSE Department

INTRODUCTION

Graphs naturally represent information ranging from links between web pages to friendships in social networks, to connections between neurons in our brains. These graphs often span billions of nodes and interactions between them. One of the fundamental tasks in structured data mining is discovering of frequent sub-structures. These discovered patterns can be used for characterizing structure datasets, classifying and clustering complex structures, building graph indices & performing similarity search in large graph databases.

Large-scale (network) data is available everywhere. Acquiring the skills and understanding of how to process and study these large datasets for solving real-world problems, such as anomaly detection, making predictions and recommendations, compression, fast querying, etc. are crucial in today's data-driven world.

Graph mining is a classical field in data mining, which focuses on either mining common sub graphs from multiple graphs or mining frequent sub graphs from a single large graph. Pioneering techniques mainly mined sub graphs from graphs of tabular data, which contain distinct node and edge labels.

However, for visual data collected from real-world situations, such as images and videos, we need to consider the fuzziness of the data. Given two visual sub graphs that share the same sub graph pattern, two corresponding nodes (or edges) in the two sub graphs may have a considerable variation in their labels or attributes. The attribute variation in a node (or an edge) corresponds to changes of local appearance (or global shape deformation). We define the data fuzziness as the variation of node/edge attributes, and the data fuzziness undermines the basis of conventional graph-mining approaches.

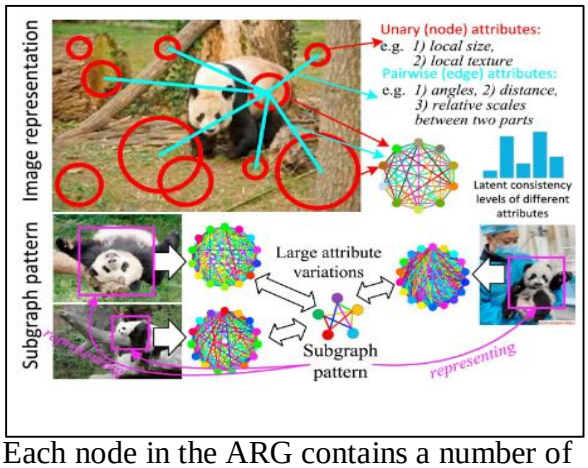
CONCEPT OF SUB GRAPH PATTERNS:

Consider a typical application, i.e. mining common objects from images without annotations of object bounding boxes.

Applications of Graph Patterns

- Mining biochemical structures
- Finding biological conserved sub networks.
- Finding functional modules.
- Program control flow analysis.
- Intrusion network analysis.
- Mining communication networks.
- Anomaly detection.
- Mining XML structures.
- Building blocks for graph classification, clustering, compression, comparison, correlation analysis, and indexing.

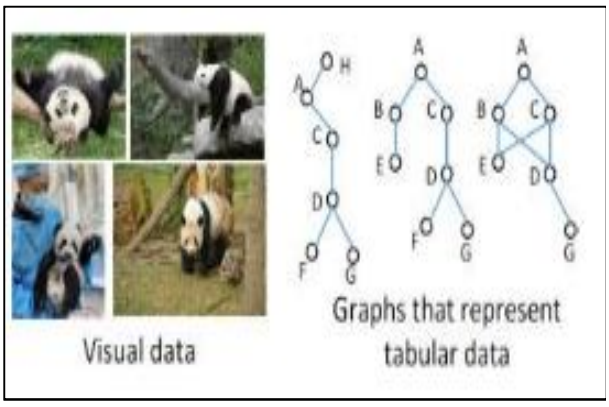
An image can be modelled as an attributed relational graph (ARG), as shown in Fig. 1.



Each node in the ARG contains a number of high-dimensional unary attributes to describe different local features. Pair wise attributes on the edges measure different spatial relationships between object parts.

In this case, the model for the common objects among the images corresponds to the sub graph pattern among the ARGs. In other words, "discovering frequent sub graph patterns among visual ARGs" can be regarded as an elegant solution to "mining and modelling objects with similar appearances and structures from visual data".

As shown in Fig. 2, unlike tabular data, visual data presents an intuitive problem, i.e. we should simultaneously consider object occlusions and intra-category variations in texture, rotation, scale, and pose among different objects. Such variations are formulated as attribute variations among the ARGs.



Compared to previous patterns in Zhang et al., 2014, Zhang et al., 2016, we further consider the uncertainty of pattern similarity metrics, which is the biggest challenge in real-world situations. Different sub graph patterns usually have their own metrics to evaluate the similarity between sub graphs. First, we should discover the hidden dependency/linkage relations between nodes. The selective use of strong part dependencies (e.g. strong spatial relationships/edges between the head node and the body node) and neglect of weak linkages (e.g. weak spatial relationships/edges between forefeet and hind feet) would produce stable mining performance. Second, we should incrementally discover latently effective attributes during the mining process. For example, the spatial relationship between parts may be the key factor to identify patterns of rigid objects, but such spatial relationships are not so significant when we measure the pattern similarity between dynamic animals.

VISUAL GRAPH MINING:

The key to this research is the generality of our method, as this ensures its broad applicability. Therefore, in this study, we define a general visual attributed pattern (VAP) to comprehensively encode all the above visual challenges that are ubiquitous in different visual data.

In addition, we develop a generic method to efficiently mine such patterns. Given an initial graph template, we gradually modify this template to the maximal-size VAP (mVAP) by discovering new nodes, eliminating redundant nodes, adjusting node linkages, and training attributes and matching parameters.

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STUDENT ARTICLE

EVOLUTION OF ROBOTICS

Kapparath Aishwarya
4/4 B Tech, CSE Department

INTRODUCTION

Robotics is the intersection of science, engineering and technology that produces machines, called robots, that substitute for (or replicate) human actions. Robots are gaining intellectual and mechanical capabilities that don't put the possibility of a R2-D2-like machine out of reach in the future. Today, we're seeing an evolved and expanded definition of robotics that includes the development, creation and use of bots that explore Earth's harshestconditions, robots and even robots that assist in almost every facet of healthcare.

EVOLUTION

After the World Wars, Isaac Asimov's robots didn't just capture the popular imagination of Post-War America; they kickstarted a new era in robotics history. As soon as 1946, the Electronic Numerical Integrator and Computer, or ENIAC, was officially constructed. The ENIAC was one of the first electronic general-purpose computers. Then in 1950, Ida Rhodes co-designed the C-10 programming language for UNIVAC I. UNIVAC I was the computer system that would later be used to determine the U.S. census.

In 1950, George Devil invented Unimate, the first industrial robot. Unimate could transport die castings and weld them into automobiles. Similar to modern automation in manufacturing and other industrial fields, these industrial robots would be programmed for a specific function as a means of replacing unskilled labour. Unimate was one of the most important milestones in the history of robots. The 1960s and 1970s were the decades of arm-like automatons. Shakey (1966), the Stanford Arm (1969), and the Silver Arm (1974) gave rise to Puma350 (1985) and Cyber Knife (1992), which both served as innovative robotic technology in the medical field.

CHARACTERISTICS OF ROBOT

Sensing First of all your robot would have to be able to sense its surroundings. It would do this in ways that are not unsimilar to the way that you sense your surroundings. Giving your robot sensors: light sensors (eyes), touch and pressure sensors(hands),chemical sensors (nose), sonar sensors (ears), and taste sensors (tongue) will give your robot awareness of its environment.

Movement a robot needs to be able to move around its environment. Whether rolling on wheels, walking on legs or propelling by thrusters a robot needs to be able to move. To count as a robot either the whole robot moves, like the Sojourner or just parts of the robot moves, like the Canada Arm.

Energy a robot needs to be able to power itself. A robot might be solar powered, electrically powered, battery powered. The way your robot gets its energy will depend on what your robot needs to do.

Intelligence A robot needs some kind of "smarts." This is where programming enters the pictures. A programmer is the person who gives the robot its 'smarts.' The robot will have to have some way to receive the program so that it knows what it is to do.

TYPES OF ROBOTS

Pre-Programmed Robots: Pre-programmed robots operate in a controlled environment where they do simple, monotonous tasks.

Humanoid Robots: Humanoid robots are robots that look like and/or mimic human behaviour. These robots usually perform human-like

activities (like running, jumping and carrying objects)

Autonomous Robots: Autonomous robots operate independently of human operators. These robots are usually designed to carry out tasks in open environments that do not require human supervision.

Teleported Robots: Teleported robots are mechanical bots controlled by humans. These robots usually work in extreme geographical conditions, weather, circumstances, etc.

Augmenting Robot: Augmenting robots either enhance current human capabilities or replace the capabilities a human may have lost.

REAL-LIFE IMPLEMENTATIONS

Robot Restaurants: India's first robot-themed restaurant that uses robots to serve food was opened in Chennai in 2017. The waiters who operate the robots and control their movements using app. Long magnet strips on the floor guide the machines around the restaurant.

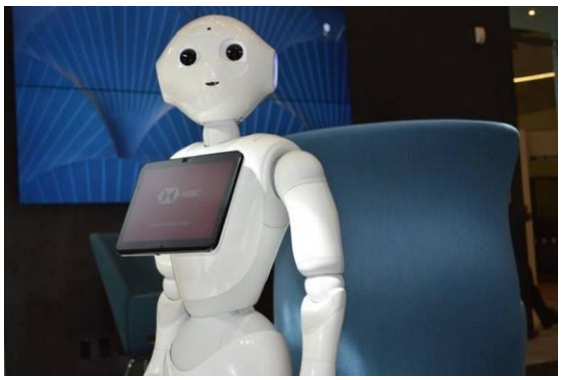
Bengaluru's first robot restaurant in Indiranagar has five robots to serve you food and to sing to you

. Arya, Ramya, Zoey, Alice, and Sansa -and another robot to welcome you at the entrance. The Android run robots which run on Japanese technology. The robots have also been equipped with built-in facial recognition technology and can sing birthday wishes for those celebrating their special day at the restaurant.

HealthCare CentresDiligent's AI-enabled robots are designed to work with people in everyday environments. It's capable of navigating hospital hallways and other tight spaces, Moxi is even imbued with social intelligence that's conveyed through its head movements and LED eyes.

The ReWalk Personal 6.0, is a wearable exoskeleton with motors located at the hip and knee joints.

Myomo's MyoPro device reads nerve signals from the skin's surface, and then activates small motors that facilitate natural arm and hand



movements.

TransEnterix's Senhance Surgical System for laparoscopic procedures features fully reusable instruments and can integrate with existing technology.

Humanoid

Sofia is a humanoid-like robot that's capable of holding a conversation. Sofia is also unusual in that she's been given official citizenship in Saudi Arabia and the United Nations title of "Innovation Champion".

Romeo is a humanoid sized robot who's designed and built to assist the elderly as they lose their own autonomy. This robot is designed to be able to open doors, climb stairs and reach for objects while going about its care duties.

Toyota's T-HR3 is a humanoid robot system which allows a human user to remotely manoeuvre a robotic counterpart.

REEM is a full-size humanoid service robot. This robot can act as a receptionist, provide entertainment for guests, make presentations and give speeches in different languages and help with a variety of different chores.

Deliveries & Connecting People

Star ship Technologies have developed this local delivery robot designed to quickly deliver parcels and post within a two-mile radius. This wheeled self-driving delivery boot is an interesting alternative delivery drone.

Ava Robotics has designed a robot that allows workers to easily move around a remote location as if they were really there. This robot combines high definition video conferencing technology with robotic mobility allowing remote workers to communicate easily with their colleagues too.

Robot Friend:ASUS Zenbo is a robot friend for all the family. This robot is intended to help out in a variety of ways around the house. It's a smart home manager, a security monitoring device, a handy kitchen assistant and even a family photographer.

Tapia is a smart robot designed to help you stay in contact with friends and family, organise your hectic schedule, keep you up to date with the latest news and give hands-free access to your smart home devices.

Pepper is a Japanese humanoid robot that can sense emotion and exhibit its own feelings.

Kuri is a robot for the home designed with personality, awareness of its surroundings and the power to move about the house freely too. It's designed to fit into your home and become part of the family - entertaining your loved ones, playing music and capturing special moments. Aeolus is a general-purpose consumer robot designed to help around the house with various chores. This robot is capable of delivering food, picking up clutter from around the home, finding things you've lost and more.

Rescue Robots: All terrain robots (ATRs) will truly function as a team by sharing their locations, discoveries, search patterns and more. Large ATRs could carry many smaller robots and provide them with localized control and power.

These smaller more specialized robots will have cameras, sonar, heat sensors, and motion detectors and can be sent out by the large ATRs as needed. Smaller robots might work together to perform tasks such as moving a large obstacle.

THE FUTURE:

The robotics industry is still relatively young, but has already made amazing strides. From the deepest depths of our oceans to the highest heights of outer space, robots can be found performing tasks that humans couldn't dream of achieving. Robotic engineers are designing the next generation of robots to look, feel and act more human, to make it easier for us to warm up to a cold machine.

Realistic looking hair and skin with embedded sensors will allow robots to react naturally in their environment.

Artificial eyes that move and blink. Slight chest movements that simulate breathing. Manmade muscles to change facial expressions. These are the must have attributes for the socially acceptable robots of the future.

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[41]https://www.ctemag.com/news/articles/evsolution-of-robots

STUDENT ARTICLE

Convolution Neural Networks: An Introduction

Monica Sai Kampala
4/4 B Tech, CSE Department

Introduction

An artificial neural network is a computational model which is nonlinear and is developed to mimic the working of human brain and nervous system. Neural networks are classified based on the corresponding model's mathematical operations and compatible input parameters required. The various neural networks include:

Multilayer Perception (MLP)

Feed forward Neural Network

Radial basis function Neural Network

Convolution Neural Network (CNN)

Recurrent Neural Network (RNN)

This article focuses on convolutional neural networks which are similar to feed forward neural networks. To understand the working convolutional neural network, it is important to understand feed forward neural network.

Feed forward Neural Network

This model is one of the simplest types of ANN where the input data travels in one direction until it reaches the output node. A feed forward neural network may or may not have hidden layers. Unlike other complex neural networks, this model does not have back propagation.

In a feed forward neural network, the sum of the products of the inputs and their weights are calculated and are fed into the output layer. A simple feed forward neural network is capable of dealing data with lot of noise. The sum of the products of inputs and weights are calculated using an activation function. If the output is above a fixed threshold which is usually 0, the neuron is activated with an output which is usually 1, otherwise it emits the deactivated value (usually -1).

The feed forward neural networks are usually applied on data where classifying the target classes is complicated, such as computer vision and speech recognition. Compared to other neural networks, it is easy to maintain.

Convolution Neural Network

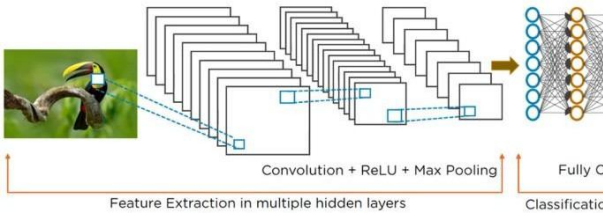
Convents or CNNs have a wide range of applications especially in the domain of computer vision, natural language processing and recommender systems. Similar to other neural networks, CNNs also contain neurons and their corresponding learned weights and biases. Each neuron receives several inputs, calculates a weighted sum of them, passes it through an activation function and returns an output.

The major difference between CNNs and neural networks is the mode of input. Neural networks take input as a vector whereas Convents take a multi-channelled image as input. The architecture if a Convent is analogous to that of the connectivity architecture of neurons in the human brain and was inspired by the organization of Visual Cortex.

An image is a matrix of pixel values and CNNs support multi-channelled images unlike feed forward neural networks. We can think that flattening the image into a vector and feeding it to a feed forward

neural network for classification can work as an alternative for CNNs. This might work in case of extremely binary images by showing an average precision score. But, in case of complex images having pixel dependencies throughout the image it would result in little or no accuracy while classification.

A Convent successfully captures the spatial and temporal dependencies in an image through application of various filters present in its architecture. It also performs better fitting of image dataset to the model due to the reduction on number of parameters and reusability of weights. The role of a CNN is to reduce the images into a form that is easier to process, without losing critical features which help the model for efficient prediction. This principle of CNN is important when we design model architecture that is not only good in learning but also is scalable to large datasets.



Defining a Convent Architecture

CNN image classifications take an input image, process it and classify it. Generally, a deep learning CNN model takes each input image and passes it through a series of convolution layers with filters(kernels), pooling layers, fully connected layer and apply loss functions to classify the image with probabilistic values between 0 and 1.

Fig 1: Fully Connected CNN Architecture

There are three basic components to define a simple convolutional network

The Convolution Layer

The Pooling Layer

The Fully Connected Layer

I the Convolution layer

The convolution layer aims at reducing the size of the image for faster computations of the weights and improve it generalization. During the convolution operation, the network retains the essential features of the image and excludes the irrelevant noise.

Convolution Operation:

Convolution is an element-wise multiplication. The computer scans a part of the image, usually with a dimension of 3x3 and multiplies it to a filter.

The output of the element-wise multiplication is called a feature map. This step is repeated until the complete image is scanned. After the convolution operation, the size of the image is reduced.

The filter used in the convolution layer is usually defined as a weight matrix. Assume a weight matrix like a paint brush painting a wall. The brush first paints the wall horizontally and then comes down and paints the next row. Pixel values are used again when the weight matrix moves along the image. This enables parameter sharing in the CNN. So, the weight matrix behaves like a filter in an image, extracting particular information from the original image matrix. The weights are learnt such that the loss function is minimized.

The filter or the weight matrix usually moves one pixel at a time across the image. We can define the how the weight matrix should move as a hyper parameter. The number of pixels by which the filter moves if referred as a stride.

II the Pooling Layer: The purpose of the pooling layer is to reduce the dimensionality of the input image. By diminishing the dimensionality, the network has fewer weights to computer, so it prevents over fitting. The most common approach used in pooling is max pooling. Max pooling returns the maximum value from the portion of image covered by the kernel. Max pooling also acts as noise suppressant by discarding noisy activations altogether and also by performing de-noising along with dimensionality reduction.

The convolutional layer and pooling layer together form the i-th layer of a Convolution Neural Network. ReLU's purpose is to introduce non-linearity in our Convent. Since the real-world data which the Convent should learn might contain negative values, we used ReLU to convert the data to non-negative linear values. There is other nonlinear function such as tanh and sigmoid, but most of the data scientists prefer using ReLU due to its better performance.

III the Fully Connected Layer: After multiple layers of convolution and pooling, we would need the output in the form of a class. The convolution and pooling layers would only be able to extract features and reduce number of parameters from the original images. However, to generate the final output we need to apply a fully connected layer to generate an output equal to the number of required classes. The input of fed into the feed forward neural network and back propagation is applied to every iteration of training. After training over a series of epochs, the model will be able to distinguish between images and classifies with the help of loss functions such as surtax and cross entropy loss.

Retrained Convolution Models: There are various powerful CNN architectures which have been developed as part of ImageNet project. The Image Net project is a large visual database designed for use in visual object recognition software research. It also runs an annual software contest, the Image Net Large Scale Visual Recognition Challenge (ILSVRC), where programmers and companies compete to correctly classify and detect objects and scenes.

The CNN architectures of top competitors in ILSVRC include:

1. LeNet-5 (1998)

2. AlexNet (2012)

3. ZFNet (2013)

4.GoogleNet/Inception (2014)

5.VGGNet (2014)

6.ResNet (2015)

References

[1] O'Shea, Keiron & Nash, Ryan. (2015). An Introduction to Convolution Neural Networks. ArXiv e-prints.

[2]https://towardsdatascience.com/a-comprehensive-guide-to-convolutional-neural-networks-the-eli5-way-3bd2b1164a53

BLOCK CHAIN TECHNOLOGY

A Tejaswini Sai

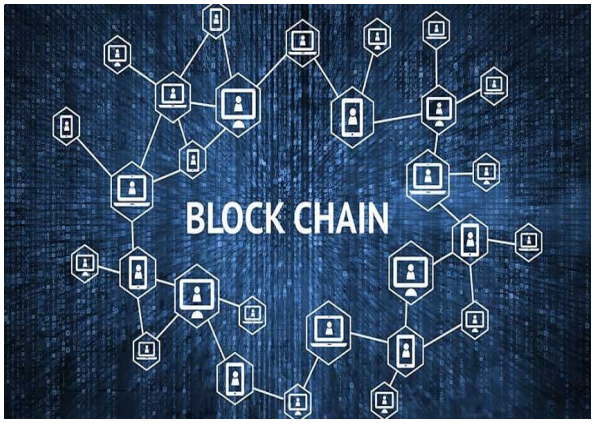
2 B. tech, CSE department

Block chain is a revolutionary technology that is popularly known as the backbone of Digital Crypto currencies, which have been generating incredible hype in the last decade. It gained attention after the introduction of Bit coin in 2009 by a person or a group of people using the pseudonym Satoshi Nakamoto. From that point on, Block chain has unfolded into a great technology that has attracted the attention of an increasingly large number of people have

Most people who lack familiarity with Block chain confuse it for bit coin; however, bit coin is the application that introduced the world to Block chain technology for the first time. Block chain technology has a growing number of uses in today's digital era. Just like you may not necessarily know what propels a car forward, you don't have to know the Block chain operation in order to use it. However, learning about Block chain and getting a grasp on its basics is not only a good idea, but it can also boost your chances of starting your career in Block chain technology.

What exactly is Block chain Technology?

Ten years ago, Block chain was combined with other innovative technologies for the purpose of generating crypto currencies, beginning with Bit coin, the first Block chain-based crypto currency. This was the first instance when Block chain was successfully integrated and executed. Mr. Alex of Block chain



Research Institute, who authored Block chain Revolution 2016, states that "Blockchain is a trustworthy digital ledger or a distributed database that keeps track of transactions and can be programmed to not only record financial transactions but also everything else that has a worth".

In layman's terms, Block chain is an encoded, dispersed database that records data similar to a computerized record of any exchanges, transactions, contracts, etc. One of Block chain's major highlights is that it's a computerized record that's widely available widely over a large number of PCs. This means that Block chain is accessible across a plethora of computer systems and doesn't need to be tied down to a single place. Block chain has started impacting the financial and

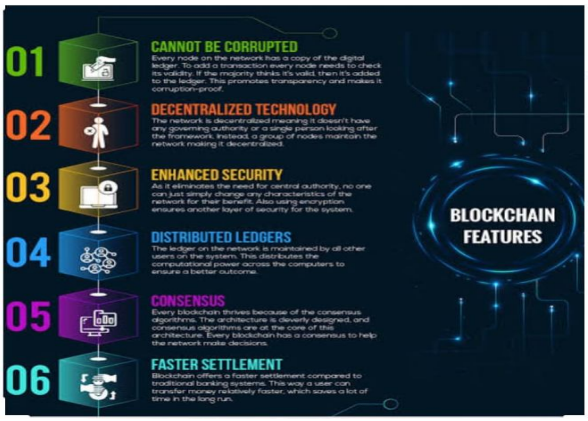
technical sector drastically, n by means of digital currency like Bit coin, smart contracts, and other innovative and revolutionary applications.

Block chain is useful for the protected transfer of items like property, money, contracts, etc. without any third-party intermediary like a bank or government agency. Once the information is recorded inside a Block chain, it is impossible to change it, thanks to its immutable features.

All the information in it is chronologically stored and typically is not handled by any of the central authorized organizations. Block chain technology becomes a valuable tool in the economic sector as the users directly access and carry on transactions without the involvement of any third party. Such transactions are carried out securely by encrypting user information. The primary benefit of Block chain technology is that it seldom faces the issues of a data breach.

Why there is So Much Hype around Block chain Technology?

There are plenty of claims regarding Block chain's actual potential. The distributed ledger database has been regarded as a game-changer, with many individuals staking their reputations and fortunes on it. Claims have been made about its ability to aid in increasing transparency in the health and manufacturing sectors, as well as reducing fraud for enterprise applications such as financial systems or for that matter, any system involving centralized control. Actualizing Block chain innovation in the thriving shared economy could diminish the requirement for focal control.



Block chain proves its capability by bringing simplicity and immutability to the process of accessing information. The potential for smart contracts, as well as the opportunity to make new business models, should inspire business heads to review the fundamental aspects of their business in the context of Block chain. Features like trust, immutability, privacy, and reliability make Block chain appropriate for every industry. Block chain technology is going to be a relevant subject of conversation for many days to come.

How Does Block Chain Technology Work?

In simple words, you can think of Block chain as a Google spreadsheet that is shared by a huge number of systems all across the globe. The spreadsheet is connected to the internet and every time a transaction takes place, the details of it get recorded in the rows of the spreadsheet. Anyone with a computer or mobile device can access the spreadsheet after connecting via the internet. Also, everyone accessing the spreadsheet can view or add transactions in the spreadsheet, but cannot edit the information already present in it.

Let's Recall a Few Important Features Before We Get into the Details

As mentioned, prior, Block chain technology maintains a record of entire data exchanges. In the world of cryptocurrency, transfer of each information, property, etc is called a 'transaction', while the data where all transactional records are stored is called a

'shared ledger'. Each completed transaction is included as a "block" in the ledger.

Every transaction is confirmed using a distributed system — a peer-to-peer network of nodes. It also uses the consensus algorithm model for transactions. The consensus model consists of specific objectives that are used in Block chain to create equality and fairness in the online world. Here are some of the objectives of Block chain's consensus model. Coming to an agreement, Collaboration, Co-operation, Equal Rights, Activity, Participation.

Once the digital transaction happens and it is added to the distributed ledger, it becomes almost impossible to alter the data at a later time.

To start with, we need to unfold the theory of "keys". You are provided with a set of cryptographic keys for your identity. One of the keys is called the private key and the other is the public key. They are combined together to give you a digital signature.

Your public key is like a notice, with which others can recognize you. The private key gives you a digital identity to authorize a transaction. However, in order to authorize any complete Block chain transaction, you have to use both private and public key jointly.

In the cryptocurrency world, the wallet address (public key) signifies you, and your private key helps you to authorize transfers, withdrawals, or carry on other actions with your digital property such as crypto currencies. Hence, it is imperative to protect your private key or else anyone who can access it would have complete authority to corrupt any of your r digital assets that are associated with the public key.

Whenever a transaction happens, it is by default authorized by a person who has a private key. For instance, in the transaction "Bob is sending Rex 0.4 BTC", he adds Rex's address (public key), and puts in the digital signature using both private and public key.

This transaction is updated in the Block chain ledger as "Bob sent to Rex 0.4 BTC", and it is given a unique ID number and timestamp to indicate the time the transaction occurred. As this transaction occurs, it's transmitted to a peer-to-peer network of nodes, essentially other digital entities that acknowledge that the transaction has occurred and thus it should be added to the ledger This alerts other digital entities to the completed transaction and suggests the same be updated in the digital ledger.

Conclusion:

Though Bit coin is the most successful implementation of Block chain technology, it has much wider and greater potential than just crypto currencies. It might be a new technology for some people and organizations, but it's on the verge of creating a revolution in the world of technology and finance.

While some industries have started using Block chain in various sectors, there are plenty of others who are only now finding out the possibilities. Many applications are being tried and tested each day, adding to this exciting technology. And once these applications are made live for the global audience, Block chain will reshape the technology and lives of the people for good.

So, what are you waiting for? If you are intrigued by Block chain and its applications and want to make your career in this fast-growing industry, then this is the right time to learn Block chain and gear up for an exciting future.

References:

https://www.simplilearn.com/blockchain-explained-article.

RITU KARIDHAL

Shaik Rumana ,Y meghana

2 B.tech CSE department

"*For me, Sky No Longer the Limit: Rita Kari dhal, Chandrayaan-2 Mission Director*"

She is a Senior Scientist in Indian Space Research Organisation with a key role in realizing the Mars Orbited Mission, which created history of being the first mission to reach Mars in its first attempt.As a child, she knew that her interest was in the space sciences. Gazing at the night sky for hours and thinking about outer space, she wondered about the moon, as to how it changes its shape and size; studied the stars and wanted to know what lay behind the dark space. Inherteens, shecollected newspaper cuttings about any space-related activity and kept track of the activities of ISRO and NASA.She did M.Sc. in Physics from Lucknow University and then MTech from Indian IISc. Bangalore. She always had the fascination about space. The dream of joining the space agency came true in 1997,November. She has worked for many prestigious missions of ISRO and also handled responsible position of Operations Director for many missions.Karidhal has worked for ISRO since 1997. She played a key role in thedevelopment of India's Mars Orbited Mission, Mangalyaan,dealing with the detailing and the execution of the craft's onward autonomy system .Shewas also the Deputy Operations Director of this mission.

Mangalyaan was one of the greatest achievements of ISRO. It made India the fourth country in the world to reach Mars. It was done in 10months time and at far lesser cost to the taxpayers-450 cores only. Her job was to conceptualize and execute the craft's onward autonomy system, which operated the satellite's functions independently in space and responded appropriately to malfunctions.

She worked for the Chandrayaan 2 mission,which seeks to send a rover to the moon's surface and study lunar soil in 2019.Being the Project Manager and Deputy Operations Director for MOM, shewith her team, was responsible to execute the critical operations of Leaving Earth and Capturing Mars, which could be realizedflawlessly.RituKaridhal has published more than 20 papers both in International and National Publications.

She has been the recipient of many awards including "Young Scientist Award in 2007 by Shri Abdul Kalam, the then President of India,", "ISRO Team Award for MOM in 2015", "ASI Team Award ", "Women Achievers in Aerospace, 2017" by SIATI (Society of Indian Aerospace Technologies & Industries (SIATI), "Birla Sun Achievement Award "by Bank of Baroda. Presently She is working for ISRO's first Landing Mission on Mooni.e.Chandrayaan.

References:

https://www.news18.com/news/india/chandra yaan-2 , "8 Awesome ISRO Scientists Who

Happen To Be Women". *indiatimes.com*. Retrieved 4 March 2017

SHORT STORY

Narada,the celestial sage,was a confirmed bachelor, but one day he saw princess Srimati and fell in love with her. To his dismay another sage, Tumbruwas also smitten by her and wanted to marry her.

Both were devotees of lord Vishnu and both sought his help.Narada asked thatTumbru's face should change into bears at the swayamvar at which the princess would select her husband. Tumbru,not knowing that his rival had already approached Vishnumade a similar request. He asked that Narada should appear to have monkey's face. At the swayamvar,the princess trooped down the long line of suitors with her garland. Narada and Tumbru stood out among the others, but when she went closer,Narada's face suddenly seemed to change and take on a similar look. She hastily turned to Tumbru, but to her he now looked like a bear. As she stood there in confusion,she suddenly saw another man standing between Narada and Tumbru. It was lord Vishnu himself. He hadcome to find out how his devotes were faring. The princess however did not care who he was and why he had come. She was so relieved to see a normal human face that she immediately put the garland around his neck. Narada and Tumbru did not mind losing to lord Vishnu,but each was secretly glad that the other hand not got the princess.

Puzzles

1.There are 50 bikes with a tank that has the capacity to go 100km.Using these 50 bikes, what is the maximum distance that you can go?

2. What can you see once in a minute, twice in a moment and never in thousand years?

3. Add one line to make the equation true

5+5+5+5+5=555

A.N.L. Sindhu(18JG1A0506)

Do you know????

What does space smell like???

Space does have a distinct odour that hangs around. Astronauts have described it as “hot metal” or “searing steak”.

The largest prime number has 17,425,170 digits and the new prime number is 2 multiplied by itself 51,885,161, minus 1.

Only 10% of the world’s money is physical, the rest only exists on computers.

TYPEWRITER is longest world that you can write using only one row in keyboard.

Vasantha(18JG1A0508)

JOKES:

THE PROBLEM OF BEING A PROGRAMMER

My mom said:

“Teju, please go to the market and buy 1 bottle of milk. If they have eggs, bring 6”

I came back with 6 bottles of milk.

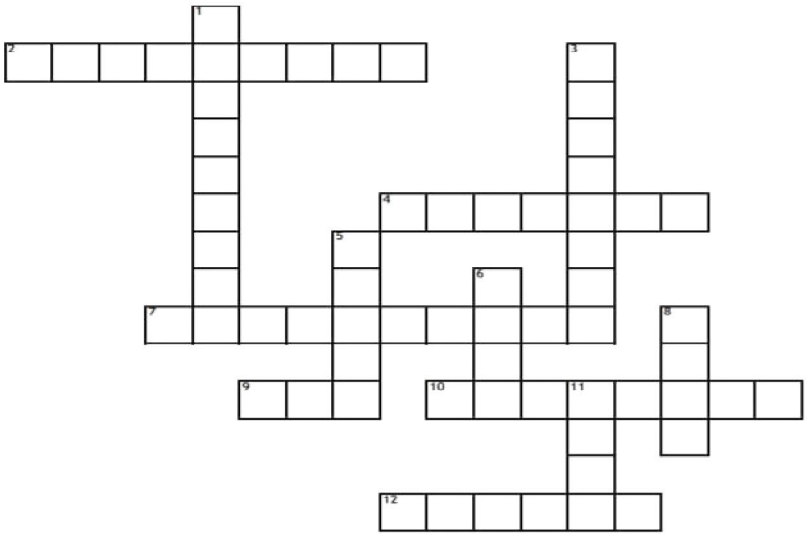
She said: “why the hell did you buy 6 bottles of milk?”

I said: “BECAUSE THEY HAD EGGS!!!

Explanation: Here if condition is absence of eggs. Here the if conditional statement is bringing 1 bottle of milk, else conditional statement is bringing 6(didn’t mentioned as 6 eggs) soI bought 6 bottles of milk.

B. SrihasaJyotsna(18JG1A0509)

CROSSWORD



ACROSS

2) A device which lets you interact with computer

4) Data expressed as series of 1's and 0's electronically

7) A flexible, removable, magnetic, memory disk

9) Smallest unit a computer can work with

10) Is an input device used on laptops and desktops?

12) A way to store free pieces of work

DOWN

1) Indicates the use of colours, pictures or icons

3) An input device that is a column used for control

5) The opposite of output

6) To place documents in a particular order

8) To create an image

11) A small unit of memory equivalent to 8 bits.

K. SRAVANI (18JG1A0551)

S. JYOSHANA (18JG1A0591)

ART BY SOME OF OUR STUDENTS

By Y. ALEKHYA
(18JG1A05A5)

BY RUCHITA
(18JG1A0576)

INTERNATIONAL YOGA DAY CELEBRATIONS

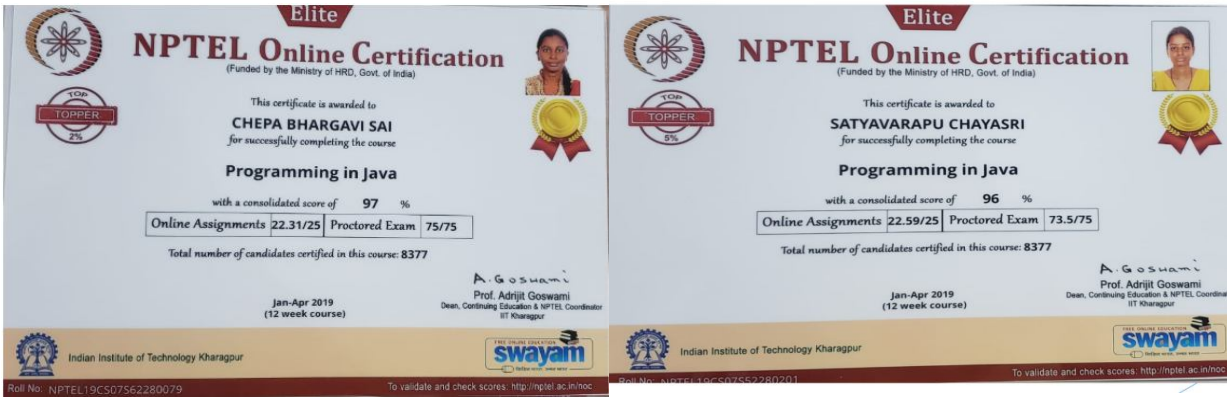
The practice of Yoga is something that has the power to heal entire body without any medication. Yoga day is celebrated on 21st of June every year which came into being in the year 2015 with the efforts made by the Prime Minister Narendra Modi. So GVPCEW also came forward and took initiative to celebrate international yoga.

TOP HACKER RANK HACKOS FROM CSE DEPARTMENT

SNO	NAME	ROLLNO	HACKOS
1	P AISWARYA	16JG1A05B3	41601
2	CH LAVANYA	16JG1A0521	35730
3	CH VINEELA	16JG1A0520	37653
4	N NAGA SRIHARI	17JG1A0581	5151
5	A SRIJA	17JG1A0508	4893
6	K PRAGNYA	17JG1A0557	4550
7	M N LAKSHMI SOWMYA	18JG1A0566	775
8	Y NIKITHA	18JG1A05A8	375
9	M KEERTHI	18JG1A0564	315

Hacker Rank is a technology company that focuses on competitive programming challenges for both consumers and businesses, where developers compete by trying to program according to provided specifications .It is a place where programmers from all over the world come together to solve problems in a wide range of Computer Science domains .Students from our college shows keen interest and also participate actively upon their own interest.

TOPPERS IN NPTEL 2019 JAN-APRIL SEMESTER



National Programme on Technology Enhanced Learning (NPTEL) is a project of MHRD initiated by seven Indian Institutes of Technology along with the Indian Institute of Science, Bangalore in 2003, to provide quality education to anyone interested in learning from the IITs. The main goal was to create web and video courses in all major branches of engineering and physical sciences at the undergraduate and postgraduate levels and management courses at the postgraduate level.

Since 2013, through an online portal, 4-, 8-, or 12-week online courses, are being offered. The enrolment to and learning from these courses involves no cost. An in-person, proctored certification exam (optional) will be conducted at Rs. 1000/- per course and a certificate is provided through the participating institutions and industry.

QUIZ ON CODING

To learn more and to understand better there is need for peer group interaction. The platforms like quizzes, discussions provides interactions.

QUILLING CLASSES BY OUR STUDENTS

Our Department organized Quillining Classes for the students. Students active participation made event grand success.It is a type of ornamental craftwork involving the shaping of paper, fabric, or glass into delicate pleats or fold. These types of events help students to learn new things and also increases creativity in them. Even, they act as platforms to showcase hidden talent in students.

List of Department Activities conducted in the Year: 2019

Academic Year: 2019-20 (CSE)				
Sl. No.	Date	Activity	Organizing Body	Level Institutional/State/Region
1	5-01-19	An Online Interactive Session on "Data Science" by Julian Ibarguen and Kholoud, PVI & Data Analyst Specialists.	Mr. A. Udaya Kumar	III B.Tech
2	**7-02-19**	**A Webinar on "Getting a Head Start and share insights on building a strong career" by Mr. Krishnan C.A, Business Unit Head, TCS.**	**Mr. A. Udaya Kumar**	**III B.Tech**
3	**13-02-19**	**A Guest Lecture on "Project and Program Management" by Mrs. P. Pratibha, Executive Director, Management Concepts, Washington DC.**	**Mr. Ch.V.V.D PRASAD, Mrs. K. Rohini, Mr. M. Santhosh**	**CSI MEMBERS**
4	10-06-19 -	Value Added Course on " Programming approach on Problem Solving " by Dr. NB Venkateswarlu	COSSENGERS	Institutional
5	20-06-19	Inauguration of IEEE	IEEE	Institutional
6	22-06-19, 29-06-19, 20-07-19, 31-08-19	A 4-Day workshop on " Web Technologies" by Dr. PVLS Jagadamba, Mr. V L Rao, Mr. K P Naidu, Mr. G Tirupati, Mrs.B V Lakshmi, Mr. M Santosh	COSSENGERS	Institutional
7	01-07-19	INFYTQ Training	COSSENGERS	Institutional
8	06-07-19	Programming Quiz	COSSENGERS	Institutional
9	13-08-19	Expert talk on Higher Education	COSSENGERS	Institutional
10	24-08-19	IEEE	IEEE	Institutional

11	28-08-19	Gate Awareness Program	COSSENGERS	Institutional
12	30-08-19	A Guest Lecture on "Statistics Concepts on Data Science " by Mr. Kamal KanthBehra	COSSENGERS	Institutional
13	09-09-19		IEEE	
14	11-09-19	A Guest Lecture on "IBM Cognos Analytics" bySandeeep Kaur	COSSENGERS	Institutional
15	16-09-19		IEEE	
16	01-10-19		IEEE	Institutional
17	28-09-19	Coscengers Inauguration	COSSENGERS	Institutional
18	27-09-19	3-day training program on "Google Explore on Machine Learning"	COSSENGERS	Institutional

WORLD HEART DAY CELEBRATIONS

In View of World Heart Day GVP group of institutions organizes a 2-K Marathon walk at RK Beach and a free Heart Check in Gayatri Medical College.All the students and faculty are actively participated and made a great success of the event.

Placements information

Nearly 50 of our students (2016-2020) have been placed in various companies like INFOSYS, TCS, GGK TECH, CARDLITYIES.

OPPORTUNITIES FOR STUDENTS

TOP UNIVERSITIES

- Massachusetts Institute of Technology
- Stanford University
- Carnegie Mellon University
- Harvard University
- The University of California, Berkeley (UCB)
- Princeton University

TOP JOB SEEKERS WEBSITES

- Indeed
- Vacancy open
- Monster
- Naukri
- Times Jobs
- Fresher world

TOP CODING IMPROVEMENT WEBSITES

- Codecademy
- Code Avengers
- Udacity
- Khan Academy
- Coursera
- TopCoder
- Coderbyte
- Project Euler
- HackerRank
- CodeChef

EDITORIAL TEAM

M Swapna:Assistant Professor, Department of CSE

K Hari Chandana : 17JG1A0563

K Sai Himaja : 17JG1A0561

SK Rumana : 18JG1A0587

Y Sai Meghana : 18JG1A05A9

A Tejaswini sai : 18JG1A0507

E MahaLakshmi : 18JG1A0524

For Any Suggestions Mail to: csemagazine@gvpcew.ac.in