Kristu Jayanti College
AUTONOMOUS Bengaluru
Reaccredited 'A' Grade by NAAC | Affiliated to Bangalore University

TECHNOBYTES

DEPARTMENT OF COMPUTER SCIENCE (PG)
VOL : 11 | ISSUE : 2 | MARCH 2019

CHIEF EDITOR : REV. FR. JOSEKUTTY P.D, PRINCIPAL | REV. FR. AUGUSTINE GEORGE, VICE PRINCIPAL | DR. R. KUMAR, HOD

IT TO IOT

PVN PavanKumar | Director | IoT Product Management | SAP Labs India

Internet of Things (IoT) - One day, our coffee machines are going to be smart enough to recognize us and suggest us with the flavor of coffee we like (say 50% coffee +40% milk+10% chocolate+1 sugar cubicle) combined with an offer, this entire process of identifying the person to running thru the algorithms and pushing the offer happens within a span of 1 second before we press the button on the coffee vending machine. That day is going to be soon and will be bought to you by Internet of Things .So what is Internet of Things and why all of a sudden this Buzz? Gartner, Inc. forecasts that 4.9 billion connected things will be in use in 2015, up 30 percent from 2014, and will reach 50 billion by 2020. These devices would go beyond PCs,Smartphones, tablets and range from alarm clocks to air coolers to washing machines to cars, basically, almost every machine and In short, IoT is about creating a virtual planet of machines- both human and non-human that "breathe" data.

IOT itself is the trend, which is applicable to almost every industry, be It Manufacturing, Retail, Healthcare, Energy, and Aerospace So on. , So raise in digital quotient among businesses, is transforming every business to a technology business.

IT to IoT is a new phenomenon. Every business whether emerging or mature, IOT will enable efficiency and improved productivity. In other words the new generation applications that powers enterprises will be based on SMAC coupled with Big Data to form smart Applications. Though we are at Peak on IOT hype curve, we are realizing the tangible outcomes of what IOT can yield.

Vice Principal's Message

A tangible indicator of technological advancements over the last forty years can be completely pointing to advancements in computer technology. The present era strides towards using brainwaves to control computers. By 2020 we expect our interaction with the world to be transforming to the level that allows us to receive information in our phone about anything we see through our special glasses. Hence it is imperative that Higher Education in Information Technology should also provide substantial experiences capable of generating a personal conviction that a given technology is worth using and an understanding of the contexts in which it is best used. Students must be ready to embrace any change in the technology and upgradeoneself regularly.

In this era, the expectations of stakeholders are prodigious. At Kristu Jayanti College, Post Graduate Department of Computer Science ensures that all opportunities are explored by each student. Apart from classroom teaching and lab session, seminars, workshops and training sessions on new technologies by Industry Experts are incorporated within the curriculum. Furthermore, students are asked to take up various Online certification courses which add extra edge to their employability. They are also encouraged to participate in various industry meet-ups to abreast with the current trends and requirements of the job market.

Technobytes- the Biannual newsletter of the department provides evidence for all the enriching activities held in the department. I wish all the endeavors of the department a great success and appreciate the creativity of our students in showcasing the activities and achievements with a professional approach.

Message from Dean's office

It is a cliché that computing keeps on changing our world. It shapes how things are planned, what data we get, how and where we work, and who we meet and work with. Furthermore, computing changes our understanding of our world and the universe beyond. The Department of Computer Science (PG) is indulged in exploring, mining and communicating this revolution of Computing among the student community and the academic fraternity. The academic year 2018-2019 was packed with curricular and co-curricular activities. The current issue of Technobytes is brought out to highlight the activities of the Department of Computer Science (PG) and the dynamism of its academic community. From displaying talent on various arenas to voicing out hypothesis on current patterns, this issue of Technobytes is an impression of the strong feeling of inventiveness among the scholarly crew of the Dept. of Computer Science. Congratulations to the team which has brought out this issue.

Department at a glance

The Post Graduate Department Computer Science offers two programmes Master of Computer Applications (MCA) and M.Sc. Computer Science. MCA programme started in the year 2004 with the objective of imparting technical education to aspiring youth to mold them into professionally competent workforce. It is a three year programme designed to impart conceptual and technical knowledge in the field of computer applications and to nurture analytical, logical, design and implementation skills for Industrial, Academic, Research and Entrepreneurial pursuit. MSc in Computer Science is a two year Master's degree programme.The autonomous curriculum is designed to hone strong software competencies, analytical and problem solving skills which are essential pre-requisites for a successful software professional. The course structure and contents are regularly updated as per the latest requirement. The learning environment is intense and stimulating. The regular academicprogramme is enhanced by Seminars, Workshops, Personality Development Programmes, Attitudinal Workshop, Soft Skills Training, Tech-Talk Series, Student Seminar Series, Communication sessions, paper presentations and Aptitude Reinforcement modules. Experts from industry conduct the sessions on a continuing basis. The students have participated in inter-collegiate fest in this semester and won overalls The students and the faculties are exposed to the latest developments in the industry. As part of knowledge sharing, peer to peer teaching is motivated amongst the students. The academic transactions are rigorous and innovative. Intercollegiate technical fes Shells 2K19, was conducted on 26th – 27th February 2019 165 Participantsfrom 17 reputed colleges from Karnataka, Tamil Nadu and Kerala participated. IEEE Student Branch organized a National Level Workshop on Internet of Things for Smart Cities on December 14 & 15, 2018. More than 40 participants attended the work shop More than 70 students attended various online courses in latest technologies and have obtained certificates. 15 online courses/ FDP were completed by the department faculty members and at present are undergoing 12 online courses conducted by NPTEL and Swayam.

Our students attended various technical meet-ups conducted by IT industries and gained knowledge in new domains and got acquainted with cutting-edge technologies IEEE Student Branch of Kristu Jayanti College is planning to organize a National Level Workshop on Natural Language Processing using Python on April 26 – 27, 2019As part of Industry Expert training programme, Advanced Java Certificate course was conducted by the experts from the IT industry. 56 students attended the programme College is institutional member of Computer Society of India and all the faculty members are life member of Indian Science Conference Faculty members of our department acted as resource person for the in-house workshops and also in the workshop conducted in other colleges. At present there are 138 students in the department

Global IT Commune

AKASHVANI @ 2030

The Department of Computer Science [PG] organized a Conference on 29th September 2018 about Global IT Commune AKASHVANI@ 2030 [GIC]. The aim of this Commune is to gain the knowledge about top 30 technology predictions for the next decade. Mr. Navaratan Katariya (Director, IOT, NASSCOM, Karnataka) was the Chief Guest of the program. The inaugural ceremony commenced with the welcome speech by Dr. Ambika, the conference faculty coordinator followed by the inaugural address of Fr. Josekutty P D., the Principal of the college. The chief guest addressed the gathering by interacting and delivering a brief introduction about AKASHVANI@2030. Next Session started with a meditation by Mrs. Bhanu Shankar (Director, Divine Mother Holistic Healing Centre and Felicitation). The Technical Session commenced with three Keynote speakers and six strategic partner speakers. The first keynote speaker was Mr. Krishna Durdha (Head - Offshore Consulting, Cognizant) and he has presented on the topic "Changing Landscape@2030". The Second Keynote Speaker was Mr. Vijay Raghunathan (GM and Global Head - Wipro) and his topic of the presentation was on "Digital Transformation@2030", the Third keynote speaker was Mr. Girish Nuli and he presented on "Technology Predictions@2030". The next session was the Panel Discussion - Round 1 moderated by Ms. Roopa Satish. The Panel Discussion - Round 2 was moderated by Mr. Manoj. Kr Nagraj, Head, Industrial Markets, Technology", M. A T Kishore (Principal Consultant, Telecom,UTL Technologies on "5G and Emerging Telecom Technologies", Mr. Prabhu Matt, Testing Head, Ericsson, on "Testing Strategies of Future Technologies", Mr. Srinivasan Mangudu (Sr. Director, Global Delivery, AI, Analytics Cognizant on "Security", Mrs. Priyamvada Kulkarni (Sr. Manager, Process and Quality Consulting, Cognizant) on "GDPR", Mr. Kalyan Talluri (Sr. Technical Director, Conformiq) on "Voice Assistants". At last, there was an IT Quiz hosted by Ms. Deepti K of Covian for the students of KJC.

Two-Day Workshop on Research methodology and IEEE Authorship

The Department Of Computer Science (PG) and the IEEE Student Branch, Conducted a two-Day Workshop on Research Methodology and IEEE Authorship Lab on 01 Feb 2019 and 02 Feb 2019. The resource persons for the day were K V S Sairam, professor NMAMIT, NITTE, and, professor Amirtha Vidhya Peetham University, Bangalore. IEEE Communication Society (ComSoc) Bangalore initiative, well supported by Bangalore section to promote research activities and quality of research in India

The workshop aimed at giving the delegates, students and the members of the teaching community a how-to guide on preparing research papers with the right approach, and techniques for the research. The first session on 'Identifying a Problem and Problem Definition' was lead by Prof. Sairam. The session briefed the following topics 'Overview of research and its networks', 'Literature Review' and 'Problem Solving'. He also gave students detailed insights into some real-life examples on how to structure the research paper, and also on general problem orientation, scope and applications.

He gave the audience thorough insights into what good quality research papers contain, their formatting and presentation styles.The third and fourth sessions on Day2 were themed 'Publishing includes IEEE authorship lab' and 'Peer review process and proposal writing', lead by Dr. Naveen Kumar who continued the lecture with some of the key topics of Day1 and best practices, and gave detailed insights into the conventions followed in writing effective and 'state-of-the-art' research papers and thesis. The day concluded with lunch and fellowship lasting 1.45pm to 3.00pm on Day2 Saturday.

SHELLS 2K19

National Level Inter-Collegiate IT Fest

The 13th edition of the National Level Inter-Collegiate IT Fest conducted by the Department of Computer Science (PG) – SHELLS 2K19 was held on 26th and 27th of February 2019.

The Inaugural ceremony was held on 26th February 2019. Mr. Pavankumar PVN, Director- IOT Product Development SAP LABS India was the chief guest, who gave the inaugural address on the topic of "Make Thought Leadership your Identity". Mr. Daniel Paul, Student Coordinator welcomed the gathering and gave the prelude to Shells 2K19. Rev. Fr. Josekutty PD, Principal gave the Presidential address and the ceremony concluded with the vote of thanks given by Ms. Nida, Student of IV MCA.

The art of making this event successful every year is the motivation the department get from the management team comprising of respected Fathers, guidance from the Faculty members, Co-operation and enthusiasm of the

students. The student coordinators Mr. Daniel Paul and Ms. Swapna of IV Sem MCA did a commanding job in bringing this edition of the Shells to reality.

Each year Shells has marked higher standard and set new goal for the next year. For the smooth registration, conduct and result publications the Technical Team of Students designed an exclusive web page.

Yet another attraction of shells was the fascinating event coding for which the winners were awarded with a job offer from Data Semantics, one of the best IT firms in Bengaluru. Ms. Pratiksha Michael, Chief People Officer, Data Semantics and her team conducted the selection process in the campus.

Ms. Pratiksha Michael was the chief guest for the valedictory ceremony. The winners and runners of all the events were honored with cash prizes, certificates and Mementos during this ceremony. Mr. Gurpreet Singh Sudan from Manipal Institute of Management, Manipal and Ms. Aswathy K from St. Aloysius College (Autonomous), Mangaluru were given with the job offer from Data Semantics, who will join the company immediately after their graduation. Students of St. Joseph's Engineering College, Mangaluru clinched the overall trophy and St. Aloysius College (Autonomous), Mangaluru was declared the runners up.

IEEE Standards of Communication Protocol

The Department of Computer Science (PG) conducted a Seminar on 19th January 2019 about "IEEE Standards of Communication Protocol" by a Senior Program Manager of IEEE named "Mr. Muneer Mohammad". The objective of this seminar was to provide the knowledge and to give an insight on how standards are been formulated, and the protocol standards of 802. Sir started the session by giving us an idea about what a standard is and the also the different phases of standard formulation. Sir provided us with the detail of how an idea goes through so many phases to become a standard, causing it to be a Four year's process to form standards, which is been revised every 10 years in order for it to be relevant to the current market. The next topic that Sir spoke about was 802 protocol, which are a family of standards the deal with local area networks and metropolitan area networks which was formulated by IEEE. Under this topic, Sir focused on two major protocols of 802, they are 802.11 and 802.15. 802.11 are being used for unlicensed spectrums. The latest versions being 802.11AX, 802.11AH & 802.11AF. 802.15. This protocol is implemented on smaller networks, also known as Personal Area Network or in cases where, power consumption must be minimal. Sir also gave us the essential of being an IEEE student member. The session was concluded with the queries asked by the audience and, the Resource Person provided the answers making the session interactive, and all the doubts were cleared.

International Lecture Series (ILS): "Anti Money Laundering"

The Department of Computer Science (PG) initiated International Lecture Series (ILS) on 3rd November 2018 about "Anti - Money Laundering" by Mr. Joseph Fernandez – Vice President of Anti Money Laundering, Bank of the West San Raman, California, USA. Sir was present here to enlighten the young talent with some excellent opportunities to gain knowledge and become expertise in various domains. The session started with a moment of silence, and the introduction of the Guest-Speaker for the day, Mr. Joseph Fernandez. The objective of the seminar was at introducing the participants the new means and tools used in preventing Money Laundering and Aggregation of taxes and tax-evasions by corporate both high and low profile in everyday life. He emphasized the need to rely on Block-Chain Strategy for safer transactions, how clients are tracked for illicit international fund transfers, things like the funding of terrorist organizations, drug dealers, money laundering agents etc. He also spoke about how the tools are used to track money online in paperless transactions are kept clean and regulated for frauds and illicit dealings. As a summary to the talk, he told the participants how simple it is to generate the tools needed to solve everyday business problems including those needed in anti-theft processes and anti - money laundering activities using basic Software Generation Techniques.

Industry Expert Training

The Department of Computer Science (PG) initiated an Industry Expert Training Program in association with Netkrafz, Bengaluru for the students of 4th Semester MCA on 24th November 2018 by Mr. Rajesh Acharya, IT Consultant, Netkraftz, Bengaluru. The objective of the industry expert training on J2EE is to provide an opportunity to the participants to have theoretical as well as practical knowledge on J2EE by the experts or trainers from Industry. To give an in depth knowledge about the industrial approach to problem solving to the students, Department of Computer Science (PG) initiated Industry Expert Training program in association with Netkrafz, Bengaluru for the students of 4th Semester MCA.Mr. Dharmendra V, founder director of Netkraftz, Bengaluru, gave a brief note on the importance of getting an industry expert training. Then Mr. Rajesh Achariya, IT Consultant, Netkraftz, Bengaluru addressed the gathering. He gave introduction about JDBC ODBC connectivity, multi-tier architecture and MVC architecture. He explained how the basic JDBC ODBC connectivity, JDBC API core parts and types of JDBC drivers, is handled in industry. Then he explained about Multi-Tier and MVC architecture and the differences between them. He also explained about Hibernate architecture, java packages, mapping and its types. The training duration is 40 Hours and it will happen every thursday. The participants of the training learnt about basics of MVC architecture. Hands on session made it more lively.

Manoeuvre 2K18 – Intra Collegiate Fest

Manoeuvre, the intra-collegiate fest is a flagship event of the Department of Computer Science (PG). It is organised by the final year students of MCA and I and II year students are the participants. Each year it is organised on various relevrelevant for the time; this academic year the theme was Bionics- the science of integrating Technology into everyday life. There were 10 events organised- IT Quiz, Ultimate warriors, IT Parliament, Tech Rangers, Coding, Treasure Hunt, Web Designing, Gaming, Futuristic Ad, and IT Manager. The prelim round were held between 20th September – to 25th September 2018. Promotions were held in the PG Block quadrangle on 25th September 2018. On the final day 26th September 2018, as chief guest Dr SriRam Kothapalli, Entrepreneurial Partner for Concept QA Labs, Global Head for Six Sigma Consulting was present. The presidential address was given by Vice-Principal Fr. Augustine George. In the inaugural address, the chief guest stressed on the need to acquire knowledge and skills in various dimensions since artificial intelligence require awareness in all areas for appropriate application. The current issue of Techno Bytes- the biannual newsletter of the Department of Computer Science (PG) was released during the ceremony.

Secure Firmware update on IoT devices using ROOF

Dr. Ambika P

IoT devices regularly require security patches and updates to protect against known vulnerabilities. Incorporating such update mechanism allow the device to fix vulnerabilities, to update configuration settings as well as adding new functionality is recommended by security experts. Once the device is deployed, firmware updates play a critical part in its lifetime, particularly when devices have a long lifetime, is deployed in remote or inaccessible areas. The model of firmware update is simple and devices go through a series of steps:- Device receive a new firmware image from a trusted source, install the new firmware image, boot into the new image, the new image works completely and everything works seamlessly. Consumers rarely update their devices. As we progress towards the concept of smart cities it is imperative to connect multiple devices from different vendors.This scenario presents 5 types of problem:

– Device resilience to power failure, network loss, etc. (and associated costs of device replacement)
– Management of the authority to update devices
– Privacy of the updates
– Status monitoring of devices targeted by an update
– Selection of which devices to update

ROOF(Real-time Onsite Operations Facilitation) P1931.1 is an IEEE standard covers interoperability, collaboration and autonomous operation of an Internet of Things (IoT) system with computing required for for context building, security, access control, data storage,data aggregation and ability to choose different cloud and application service providers. It can be implemented as a software platform on various devices that proxy the Things and their IoT services to the rest of the world devices like Mobile phones, home routers, gateways, personal computers, servers and other computing platforms as appropriate. ROOF based IoT systems are self-sufficient even during offline scenarios (no connection to cloud or central data center). ROOF is the logical single entry point (interface) to the IoT devices. ROOF Architecture is responsible for fault analysis, performance management, provisioning of networks and maintaining the quality of service. ROOF ensures secure firmware update and its maintenance.

Primary study of Cloud, Fog, Edgemobile in contribution facet

Cloud computing is a unique paradigm that is facilitating developments and utilization of resources over the internet. Fog computing operates at the edge of the network saving bandwidth, by not sending all information to the cloud, while edge computing does processing of data at the edge of the cloud. Edge computing reduces the distance data must travel on the network. The unique relationship between cloud, fog and edge computing makes research in these areas mandatory. Determining a particular research area especially in terms of these topics could be a cumbersome process for a researcher, hence the need for reviews and paper surveys for identifying potential research gaps. A Systematic mapping study provides an overview of research conducted in a particular study area. The objective of this paper is to conduct systematic mapping studies on cloud, fog, edge/mobile devices management, hierarchy models and business models. The results showed that publications that discussed process in relations to the field of study is 14.04% out of the 114 papers included. Also method contributed 24.56%, model had 42.98% and tool contributed 18.42%. Furthermore, evaluation research in terms of the field of study was 27.5% out of 120 papers included. Also, validation was discussed in 17.5% of the papers, solution was 32.5%, philosophical was 5.83%, experience was 15.83% and opinion was 0.83%. This study clearly identified gaps in the field The topics that were extracted during the classification scheme in this field of study comprise of the following:.Architecture,Application,Implementation,Networking,Mobilecomputing,Embedded systems The list of primary studies used for checking the topics against the types of contributions is at the contributions is at the above Table 1. The systematic map of cloud fog, and edge/mobile devices management, hierarchy and business models is shown in the below Figure 1. The results showed that publications that discussed process in relations to the field of study was 14.04% out of the 114 papers included. In addition, method contributed 24.56%, model had 42.98% and tool contributed 18.42%. There were no contributions at all from metric. Models discussion contributed 42.98% of the papers reviewed. In relation to the topics, model had 5.22% in terms of architecture, 12.28% in terms of application, and 3.51% in the area of implementation, 10.53% in the area of networking, 3.51% in the aspect of mobile computing and 7.89% on embedded system. Other aspects of topic and contribution aspect are reflected in .

Dr. Antony Vincent

Chameleons go on a date :

On an island live 13 purple, 15 yellow and 17 maroon chameleons. When two chameleons of different colors meet, they both change into the third color. Is there a sequence of pairwise meetings after which all chameleons have the same color?

Answer:

Let <p, y, m> denote a population of p purple, y yellow and m maroon chameleons. Can population <13, 15, 17> be transformed into <45, 0, 0> or <0, 45, 0> or <0, 0, 45> through a series of pairwise meetings?

We can define function:

$X(p, y, m) = (0p + 1y + 2m) \bmod 3$

An interesting property of X is that its value does not change after any pairwise meeting because

$X(p, y, m) = X(p-1, y-1, m+2) = X(p-1, y+2, m-1) = X(p+2, y-1, m-1)$

Now X(13, 15, 17) equals 1. However,

$X(45, 0, 0) = X(0, 45, 0) = X(0, 0, 45) = 0^{**}$

This means that there is no sequence of

Sumati M.
IV Sem MCA

Medical Applications of Quantum Computers in Radiotherapy

Radiation therapy is the most widely-used form of treatment for cancers. Radiation beams are used to destroy cancerous cells or at least stop them multiplying.

Devising a radiation plan is to minimize damage to surrounding healthy tissue and body parts is a very complicated optimization problem with thousands of variables. To arrive at the optimal radiation plan requires many simulations until an optimal solution is determined. With a quantum computer$_{nd}$the horizon of possibilities that can be considered between each simulation is much broader. This allows us to run multiple simulations simultaneously and develop an optimal plan faster.

Drug Research

Molecular comparison is an important process in early-phase drug design and discovery. Today, companies can run hundreds of millions of comparisons on classical computers; however, they are limited only to molecules up to a certain size that a classical computer can actually compute. As quantum computers become more readily available, it will be possible to compare molecules that are much larger, which opens the door for more pharmaceutical advancements and cures for a range of diseases.

Drug Interactions

Quantum computing allows us to model complex molecular interactions at an atomic level. This will be particularly important for medical research and drug discovery. Soon, we'll be able to model all 20,000+ proteins encoded in the human genome and start to simulate their interactions with models of existing drugs or new drugs that haven't been invented yet.

Diagnostics Artificial Intelligence

There is a growing trend of applying machine learning to aid with patient diagnostics. Much of machine learning is about "pattern recognition." Algorithms crunch large datasets of patient information to find signals in the noise, and the goal is to leverage comparisons made to help identify a diagnosis.

Disease Screening

Using a method known as the bio-barcode assay, we can now

Syed Faizan Ismail
II Sem MCA

detect disease-specific "biomarkers," in our blood using gold nanoparticles, which are visible using MRI technology and have unique quantum properties that allow them to attach to disease-fighting cells. These gold nanoparticles are completely safe for human use. This method is also cheaper, more flexible, and more accurate than conventional alternatives.

Mikhail Lukin, a physics professor at Harvard, is also working on manipulating nanoscale particles of diamond for similar purposes. He hopes to eventually use diamond particles, to take images of human cells from the inside and detect disease without exposing patients to radiation. It seems he has already managed to do this to detect neural activity.

Stress de-tox

Nikitha
IVsem MCA

The best product of nature is humans, but often we think we are "superhumans" and we can cope with the rapid changes in the environment, the truth is we can't and end up in a lot of stress.

The trend nowadays is that people are quitting their jobs in search of a more peaceful and less stressful life, and IT professionals are bagging the top of the list. Honestly, stress like any other emotion can be vented out, but not many of us know how to do so. Here are a few ways :

1) More human interaction

As the saying goes "No man is an island" interaction with others will actually relax and quieten thoughts. You could go to a church gathering, meet up your neighbors for a game of tennis and the list goes on.

2) Traveling

This option is more for reserved people who prefer to be on their own.Traveling helps to connect with nature, your emotions and most importantly your loved ones.

3) Working with long lost hobbies

im pretty sure that in our childhood we would have a list of hobbies, but now they probably would have depleted over the years. studies prove that learning an instrument would improve a person's mathematical skills.

4) Cooking

I know I saved the best for the last. Yes, cooking is the best stress buster and is my personal favorite. As all your senses are involved because you are watching something, listening to sounds that otherwise we miss out on, the various fragrances, the spices, and the aroma— everything is so relaxing.Just like our body de-tox our emotions and stress needs a detox, hope these methods help you.

Eliminating Virus from a Computer Network

In a network of infinitely many computers, 650 computers got infected with certain virus. The IT support team has access to five different types of antivirus software packages (let us call them A, B, C, D and E) that can work on eliminating this virus. Each of the antivirus software packages 'X' can eliminate virus from Xr infected computers if there are at least Xr virus-infected computers in the network when 'X' is applied. But it will cause Xnew new virus-free computers in the network to be infected with the virus.

Details of the antivirus software packages are shown below:

ANTIVIRUS SOFTWARE	XR	XNEW
A	25	4
B	14	0
C	8	15
D	32	18
E	50	1

Any of the antivirus software packages can be used any number of times in any order. But, no two antivirus software packages can be applied simultaneously. Can the network be freed from this virus using the antivirus software packages A, B, C, D and E? If yes, what is the order of the packages and if no, why?

Answer:

No.

Solution:

Observe that the antivirus software packages effectively eliminate virus from 21, 14, -7, 14, 49 respectively when they are applied on the network. (-7 implies 7 new virus-free computers got infected with virus). All these number of effective changes in the virus-infected computers give zero remainder when divided by 7.

So, no matter how many ever applied how many ever times, they will not change the remainder of the total number of virus-infected systems when divided by 7. But initially 650 infected computers are there and that is 6 modulo 7. So, after any number of usages of any of A, B, C, D, or E in any order, the remainder when the total number of infected computers in the network is divided by 7 stays to be 6 constantly.

Example: Initially 650 virus-infected computers are present. Initial remainder when divided by 7 = 6

A is applied. 25 will be virus-free but 4 new are infected. So, total 629 (650-25+4) virus-infected computers are present. Remainder when 629 is divided by 7 = 6. So, on.

This problem and solution are based on 'principle of invariance'.

When things are (seemingly) changing continuously, look for what core values (though hidden) are not changing.

Sandhya
IV sem MCA

Bring Voice Skins to your favourite online games

Online multiplayer games have turned into more personal experiences over the last decades. Many games are offering new ways for players to portray their avatars in different looks. This includes outfits to weapon skins and even emotes; players can design their avatars in their own personal styles. Something lacks in this games are ability to change their voices. Modulate, a computer software company co-founded by Mike Pappas and Carter Huffman, aims to address this with a technology called "voice skins" which allows you to change your voice.

Using deep neural networks and machine learning, Modulate allows you to customize your voice. You can choose to sound like the opposite gender, a celebrity or even create your own custom voice. Your emotion and cadence will remain the same, with Modulate giving you full control over how your vocal cords will be used. Modulate works by having one neural network listen to a user's voice and then try to produce something, which is then examined by a second adversarial neural network. That network then determines whether or not the voice produced is doing what it aimed to do. For example, in order to make the voice skin for Barack Obama sound like him,the adversarial network was given clips of his speeches so it could better understand his voice. The process is iterative, with the adversarial network identifying specific parts of the voice skin's audio that don't sound correct. If a voice is the wrong pitch, for instance, this will be corrected, and the voice skin network will not make this mistake on its next try. network was given clips of his speeches so it could better understand his voice. The processPappas and Huffman want Modulate to be used for players to express themselves in their favourite games. If the skin you happen to be wearing is of something menacing or makes your avatar look intimidating, modulate could more easily portray this. Likewise, for those self-conscious about their own voices, the technology would allow them to communicate with others more comfortably

Apoorva Bahuleyan
(II Sem MCA Student)

BLUE BRAIN

Sijoy S Sameul
II Sem MCA

Human Brain the most valuable creation of God. The man is called intelligent because of the Brain, but we loss the knowledge of a brain when the body is destroyed after the death. "BLUE BRAIN"-The name of the world's first virtual brain. That means a machine that can function as human brain. Is it really possible to create a human brain?

We can do this only with the help of A Machine that can function as brain, take decisions, can think, can respond & keep things in memory is known as Virtual Brain.

Reason why we need a virtual brain is to upload contents of the natural brain into it, keep the intelligence knowledge and skill of any person for ever, remember things without any effort.

Blue Brain is an undergoing research looked after by IBM, with the help of which within 30yrs we will be able to scan ourselves into the computer.

By using Blue Brain things could be remembered without any effort, can make use of intelligence of the person after death, computers can make decisions entirely of its own & it will also allow deaf to hear via direct nerve simulation. But every good thing also has some side effects as well in case of blue brain we will become dependent upon the computers, with the help of this any human could be easily cloned & very costly procedure of regaining the memory back.

But it will be helpful if we use it in the right way by which we will be able to transfer ourselves into the computer at some point, aim of applying terrific computer power to the simulation of an entire brain, very soon this technology will be highly accepted whole over the world.

Student's Academic Achievements :

Course -1

- Online Course provided by **'Cognitive Class.ai an IBM Initiative'.**
  Nine students of II Sem M.Sc completed this course.

Course-2

- Online Course provided by**'Google Analytics Academy'** are Google Analytics for Beginners, Google Analytics 360,Google tag manager fundamentals, Google Advanced, Google Analytics for Power Users . All the Students of IISem MCA completed these courses.

Course-3

- Machine Learning – Dimensionality Reduction provided by **'Cognitive Class AI, IBM'.**
  All the Students of IV Sem MCA completed this cou

Faculty Enrichment Programmes

1.Prof. Aruna Devi K :

- •Participated in 'Call for Code Global Initiative, Webinar' on 29/10/2018.
- •Participated in 'Seminar of "Developing and Deploying Deep Learning Applications using MATLAB", Mathworks Hotel Conrad, Bengaluru on 29/11/2018.
- •Presented a paper titled 'Improved Blog Classification using Multistage Dimensionality Reduction Technique at 'International Conference On "Computational Vision and Bio Inspired Computing, RVS Technical Campus, Coimbatore, Tamil Nadu" on 30/11/2018.
- •Was Resource Person for 'One Day Workshop on "Programming with Python"At V.H.N.Senthikumara Nadar College, Virudhunagar, Tamil Nadu' 27.12.2018.

2 . Dr. Ambika P :

- •Certified as "AWS Certified Solutions Architect – Associate".
- Resourceperson at "Development of Smart Sensor Technology for Electronics Applications", Sri Jayachamarajendra College of Engineering, JSS Science and Technology University, Mysuru [04th – 08th February 2019] .
- •Participated in 'IoT Next Conference , The Leela Palace, Bengaluru' on 31/10/2018.
- •Participated in 'Face to Face meeting – ROOF Computing P1931.1 Framework Development' on 26.11.2018 and 'Faculty Development Programme on Design, Development and Deployment of Machine Vision Intelligence in IoT EdgeIEEE Student Branch , Kristu Jayanti College, Bangalore' on 14-15th nov 2018.

3. Dr. Kumar R :

- •Resource Person for "Infovision 2K19" – 'Inter-collegiate IT Fest, Department of Computer Science, Maharani Lakshmi Ammanni College for women (Autonomous), Bengaluru,25/01/2019.

4.Prof. Velmurugan R :

- •Participated in "Webinar on "50 years of Software Engineering, So now what?"on 21.12.2018 .

5. Prof. Muruganantham A & Prof. Velmurugan R :

- •Participated in '10th Bengaluru India Nano Conference , Bengaluru.07.12.2018.

GALLERY
Department Activities

Congrats to Overall winners- CS(PG) team of KJC

St. Joseph College , Mangalore(27-28,Sep 2018)

Surana College , Bangalore(30-31,Oct 2018)

Jiran Kurian IV Sem MCA
Won Second Place
Riffle Shooting Peep Sight Men
Bangalore University

National level Intercollege Fest- Shells2k19 [26-27,Feb 2019]

Manoeuvre 2K18 – Intra Collegiate Fest

Computer Literarcy Program
VVM Gandhiji Memorial School , Bangalore- 6 Feb, 2019

Chavara Cup [04/02/19]-Overall Champions -Science Deanery

EDITORIAL BOARD

STAFF EDITOR
Dr. Jyothi Manoj

STUDENT EDITORS
Mr. Sangram Rauta
II Sem MCA

Mr. AJITH KUMAR G.
IV Sem MCA

Ms. Tabu K
II Sem MCA

FACULTY ACHIEVEMENT

Prof. A. Muruganantham

Congratulations!!!
Awaraded Ph.D Degree
MS University, Thirunelveli

Congratulations to all those who got placed !!!!!

Company Name	Batch	Name of the Student
DATA SEMANTICS® BETTER INSIGHTS. SMARTER DECISIONS	VI Sem MCA	Jaishree V Nilesh Singh Kumar Kynsaihunlang Iangrai Sarjun S S. Ann Riya Varghese Leena K S Sandhya B Akshay Shivanand Raikar Nissy George
	IV Sem MCA	Ajith kumar G. Boaz Titus Joel Joy
UTEGRATION	VI Sem MCA	Aleena Ann Siby Ashika Unnikrishnan
National Instruments, Bangalore	VI Sem MCA	Laimayum Shanjeet Sharma Jebin jose

Upcoming Events

- International Conference on Current Trends in Advanced Computing, ICCTAC -March 12-13, 2019
- FDP on Python Programming - March 21-22,2019
- National Level Workshop on Natural Language Processing using Python - April 26-27, 2019
- Research Colloquium of Computer Science Department - May 4th,2019