

JINDAL FIRST GRADE COLLEGE FOR WOMEN

JINDAL NAGAR, TUMKUR ROAD, BENGALURU - 73

TECHMINDS

Volume 4



Department of Computer Applications

2018-19

Jindal First Grade College for Women
Department of Computer Applications

VISION

Educate and empower rural women through value based quality education
and nurture values that promote holistic development.

MISSION

- Striving for academic excellence
- To foster human values
- Nurture women to enable them become worthy citizen
- To produce graduates of practical value to the Community

*Higher Versions of Thought And
Knowledge Are Updated In The Form of
Institutions*

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MESSAGE FROM PRINCIPAL

Tech Minds is a student-run Technical Magazine being brought out by the Department of Computer Applications. It has succeeded to provide a platform for the students to fine-tune their presentation skills and to look beyond their curriculum.

While disseminating the nuances of the rapidly expanding science and technology domain, 'Tech Minds' may also motivate the students to air their fresh ideas which would draw sustenance and growth through the comments and critics of the readers. A section to publish reader's reactors may perhaps be a worthwhile addition in the magazine.

I congratulate the staff and students of the Department of Computer Applications for their efforts in publishing 'Tech Minds' and hope to see the magazine scaling greater height and readership.

Dr.C.Sevithaya
Principal

EDITORIAL

“Education is not the learning of facts, but the training of the mind to think”.

Rarely do we have the chance to improve and at the same time to provide opportunities for recreation and development. It gives me immense pleasure to present the IT Department Magazine “TECH MINDS” for the year 2018-19. The magazine is compilation of curricular and co-curricular activities, initiatives and achievements of the department.

We are grateful to our Management for their help and valuable guidance. We thank our Principal Dr.C.Sevithaya and Vice-Principal Mrs.Shobha M for their constant support and encouragement.

We thank our faculty members and beloved students for their generous support.

ANNUAL REPORT 2018-19

Department of Computer Applications Inaugurated IT Club "Explorica". Mr. Akhilesh of Pro-Ainspira Training Center addressed final year BCA students on personality development and resume preparation on 12 July 2018. An Industrial Visit to Indian Space Research Organization (ISRO) was organized for students on 29 August 2018. Workshop was organized for students on Cisco Packet Tracer for computer networks by Jetking. The Department offered Value added courses, "Android Application Development & "Python Programming" for final year students. Demo Session by IBS institute on Banking Classes was conducted for Final year students. On 30 August 2018, Demo by Purple Finch Management regarding Placement and Career guidance for Final year students was organized. Students participated in workshop organized by "Vasavi Jnana Peetha First Grade College on "Ethical Hacking" on 1 September 2018. Department Magazine "TechMinds" was released on 5 September 2018. Guest Lecture was organized on 6 September 2018 by Mr. Sumanth S of Smt. V.H.D Homescience Central Institute on the topic Data Analytics.

National Conference on "Impact of Technology on Commerce, Management and Science" was organized on 15/02/19. Number of faculty members from various organizations presented paper and participated in the conference. Seminars, Workshop and FDP were attended by faculty of the department in various colleges. Research Papers were presented by the faculty members at National & International Conferences.

Students participated and won prize in Intercollegiate Sports & Cultural Competitions. Keerthana H of II year BCA won Silver Medal in Hepathlon Competition held at Bangalore University. Final year students attended pool campus drives at different colleges and many of them are placed in IT Companies.

CYBER SECURITY

Cyber security might not seem like emerging technology, given that it has been around for a while, but it is evolving just as other technologies are. That's in part because threats are constantly new. The malevolent hackers who are trying to illegally access data are not going to give up any time soon, and they will continue to find ways to get through even the toughest security measures. It is also in part because new technology is being adapted to enhance security.

Three of those advancements are hardware authentication, cloud technology, and deep learning, according to one expert. Another adds data loss prevention and behavioral analytics to the list. As long as we have hackers, we will have cyber security as an emerging technology because it will constantly evolve to defend against those hackers.

As proof of the strong need for cyber security professional, the number of cyber security jobs is growing three times faster than other technical job. However, we're falling short when it comes to filling those jobs. As results, it's predicted that we will have 3.5 million unfilled cyber security jobs by 2021.

Many cyber security jobs pay six-figure incomes, and roles can range from ethical hacker to security engineer to chief security officer, offering a promising career path for someone who wants to get into and stick with this domain.

Hemavathy C S
II BCA

DATA WAREHOUSE

A data warehouse (DW) is a collection of corporate information and data derived from operational systems and external data sources. A data warehouse is designed to support business decisions by allowing data consolidation, analysis and reporting at different aggregate levels. In computing, a data warehouse (DW or DWH), also known as an enterprise data warehouse (EDW), is a system used for reporting and data analysis, and is considered a core component of business intelligence. DWs are central repositories of integrated data from one or more disparate sources. They store current and historical data in

one single place that are used for creating analytical reports for workers throughout the enterprise.

The data stored in the warehouse is uploaded from the operational systems (such as marketing or sales). The data may pass through an operational data store and may require data cleansing for additional operations to ensure data quality before it is used in the DW for reporting.

The typical extract, transform, load (ETL)-based data warehouse uses staging, data integration, and access layers to house its key functions. The staging layer or staging database stores raw data extracted from each of the disparate source data systems. The integration layer integrates the disparate data sets by transforming the data from the staging layer often storing this transformed data in an operational data store (ODS) database. The integrated data are then moved to yet another database, often called the data warehouse database, where the data is arranged into hierarchical groups, often called dimensions, and into facts and aggregate facts. The combination of facts and dimensions is sometimes called a star schema. The access layer helps users retrieve data.

The main source of the data is cleansed, transformed, catalogued, and made available for use by managers and other business professionals for data mining, online analytical processing, market research and decision support. However, the means to retrieve and analyze data, to extract, transform, and load data, and to manage the data dictionary are also considered essential components of a data warehousing system. Many references to data warehousing use this broader context. Thus, an expanded definition for data warehousing includes business intelligence tools, tools to extract, transform, and load data into the repository, and tools to manage and retrieve metadata.

Meghana K N

III BCA

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Meghana K N

III BCA

INFOGRAPHICS

Infographics are graphic visual representation of information, data or knowledge intended to present information quickly and clearly. They can improve cognition by utilizing graphics to enhance the human visual systems ability to see patterns and trends.

Similar pursuits are information visualization, data visualization, statistical visualization, information design, or information architecture. Infographics have evolved in recent years to be for mass communication, and thus are designed with fewer assumptions about the readers knowledge base than other types of visualizations. Isotypes are an early example of infographics conveying information quickly and easily to the masses.

Infographics have been around for many years and recently the increase of a number of easy to use, free tools have made the creation of infographics available to a large segment of the population. Social media sites such as Facebook and twitter have also allowed for individual infographics to be spread among many people around the world. Infographics are widely used in the age of short attention span.

In newspapers, infographics are commonly used to show the weather, as well as maps, site plans, and graphs for summaries of data. Some books are almost entirely made up of information graphics, such as David Macaulay's the way things work. The snapshots in USA today are also an example of simple infographics used to convey news and current events.

Jayashree A

III BCA

RASPBERRY PI

The Raspberry Pi is a low cost, credit-card sized computer that plugs into a computer monitor or TV and uses a standard keyboard and mouse. It is a capable little device that enable people to learn how to program in languages like scratch and python. It's capable of doing everything you'd expect a desktop computer to do, from browsing the internet and playing high definition video ,to Making spreadsheets, word processing and playing games.

Raspberry Pi has the ability to interact with the outside world and has been used in a wide array of digital maker projects, from music machines and parent detectors to weather stations and tweeting birdhouses with infra-red cameras. We want to see the Raspberry Pi being used by kids all over the world to learn to program and understand how computers work. To advance the education of adults and children, particularly in the fields of computers, computer science and related subjects.

Likhitha J

III BCA

MIDDLEWARE TECHNOLOGIES

Middleware is a technology that is used to transfer information from one program to one or more other programs in a distributed environment and making it independent from the communication protocols, OS and hardware used. Middleware is the software that connects network-based requests generated by a client to the back-end data the client is requesting. It is a general term for software that serves to "glue together" separate, often complex and already existing programs. Middleware programs come in on-premises software and cloud services, and they can be used independently or together, depending upon the use case. While cloud providers bundle middleware into cloud services suites, such as middleware as a service or integration PaaS (iPaaS), industry researchers note that many businesses still choose independent middleware products that fit their specific needs.

Why is it called middleware?

With network-based interactions, a client, or requesting program, can make a request. That client is typically an application that resides on the front end, which is where the user interacts with software. Resources such as databases, message queues, NoSQL data stores and file servers are often referred to as being part of the back end. The name middleware stems from the fact that it is the software that sits between the client-side request on the front end and the back-end resource being requested.

How middleware works?

All network-based requests are essentially attempts to interact with back-end data. That data might be something as simple as an image to display or a video to play, or it could be as complex as a history of banking transactions. The requested data can take on many different forms and may be stored in a variety of ways, such as coming from a file server, fetched from a message queue or persisted in a database. The role of middleware is to enable and ease access to those back-end resources.

Sneha Gowda R

III BCA

5th GENERATION WIRELESS TECHNOLOGY

Fifth generation wireless (5G) is a wireless networking architecture built on the 802.11ac IEEE wireless networking standard, which aims to increase data communication speeds by up to three times compared to its predecessor, 4G (IEEE 802.11n). 5G incorporates the architecture amendments recommended by IEEE 802.11ac and operates in the 5 GHz frequency mode. Fifth generation wireless is primarily designed to enable a superior data communication rate between wireless local area networks (WLAN), reach speeds up to 1.5 GBps and cover a distance of 90 meters - three times more than 802.11n. The large coverage area for 5G is made possible through a technique called beamforming, in which the wireless routers ignore inefficient paths and deliberately neglect to record them in the routing table.

What is 5G exactly?

It's the next - fifth-generation of mobile internet connectivity promising much faster data download and upload speeds, wider coverage and more stable connections.

It's all about making better use of the radio spectrum and enabling far more devices to access the mobile internet at the same time. 5G stands for fifth generation, meaning the next step in the progression of technology to replace the current 4G system. 4G was the

replacement for 3G, which came after 2G, and so on. These systems are wireless computer networks. Earlier "G" systems were designed to improve mobile communication operations. Each new technology brought major improvements in speed and increased

network capacity. The new 5G system promises more of the same. It is expected to permit more users to do more things -- at a faster rate. Higher internet speeds and larger network capacity should result in better performance for device users connected to 5G.

What will it enable us to do?

Whatever we do now with our smartphones we'll be able to do faster and better," says Ian Fogg from OpenSignal, a mobile data analytics company. "Think of smart glasses featuring augmented reality, mobile virtual reality, much higher quality video, the internet of things

making cities smarter." But what's really exciting is all the new services that will be built that we can't foresee."

Bhoomika V N

III BCA

ROBOTIC PROCOESS AUTOMATION

Robotic process automation (or RPA) is an emerging form of business process automation technology based on the notation of software robots or artificial intelligence workers. In traditional workflow Automation tools, a software developer produces a list of actions to automate a task and interface to the back end system using internal Application Programming Interfaces (APIS) or dedicated scripting language.

In contrast, RPA systems the automation by repeating those tasks directly in the GUI. This can lower the barrier to use of automation in products that might not otherwise feature APIS for this purpose. As a form of automation, the same concept has been around for a long time in the form of screen scraping but RPA is considered to be a significant technological evolution of this technique in the sense that new software platforms are emerging which are sufficiently mature, resilient, scalable and reliable to make this approach viable for use in large enterprises. The hosting of RPA services also aligns with the metaphor of a software robot, with each robotic instance having its own virtual workstation much like a human worker. The robot uses keyboard and mouse controls to take actions and execute automations. Normally all of these actions take place in a virtual environment and not on screen. The robot does not need a physical screen to operate, rather it interprets the screen display electronically. The scalability of modern solutions based on

architectures such as these owes much to the advent of virtualization technology, without which the scalability of large deployments would be limited by available capacity to manage physical hardware and by the associated costs. The implementation of RPA in business enterprises has shown dramatic cost savings when compared to traditional non-RPA solutions.

Latha L

I BCA

ROBOTIC SURGERY

Robotic Surgery is a type of minimally invasive surgery "Minimally invasive" means that instead of operating patients through large incisions, we use miniaturized surgical instruments that fit through a series of quarter-inch incisions. When performing surgery with the "davinci si", the world's most advanced surgical robot- these miniaturized instruments are mounted on three separate robotic arms, allowing the surgeon maximum range of motion and precision. The davinci's fourth arm contains a magnified high - definition 3 - D camera that guides the surgeon during the procedure. The surgeon controls these instruments and the camera from a console located in the operating room. Placing his fingers into the master controls, he is able to operate all four arms of the davinci simultaneously while looking through a stereoscopic high definition monitor that literally places him inside the patient, giving him a better, more detailed 3 - D view of the operating site than the human eye can provide. Every moment he makes with the master control is replicated precisely by the robot. When necessary, the surgeon can even change the scale of the robot's movements; If he selects a three to one scale, the tip of the robot's arm will move just one inch for every three inches the surgeon's hand moves. And because of the console's design, the surgeon's eyes and hands are always perfectly aligned with his view of the surgical site, minimizing surgeon fatigue. The ultimate effect is to give the surgeon unprecedented control in a minimally invasive environment. As one of our surgeons notes, "It's as if I've miniaturized my body and gone inside the patient" utilizing this advanced technology, our surgeons are able to perform a growing number of complex urological, gynecological, cardiothoracic and general surgical procedures. Since these procedures can now be performed through very small incisions, our patients experience a number of benefits compared to open Surgery including: Less trauma on the body, Minimal Scarring and faster recovery time.

IS ROBOTIC SURGERY SAFE?

"While robotic Surgery is considered generally safe, the FDA is reviewing the data after a growing number of reports of related complications. Still, surgeons see many advantages to performing procedures with a robot".

Vachana

IBCA

HADOOP TECHNOLOGY

Hadoop is an open source software framework for storing data and running applications on clusters of commodity hardware. It provides massive storage for any kind of data enormous processing power and the ability to handle virtually limitless concurrent tasks or jobs.

- Ability to store and process huge amounts of any kind of data quickly: with data volumes and varieties constantly increasing, especially from social media and the internet of things (IOT), that's a key consideration
- Computing power: Hadoop distributed computing model processes big data fast. The more computing nodes you use, the more processing power you have.
- Fault tolerance: data and application processing are protected against hardware failure if a node goes down, jobs are automatically redirected to other nodes to make sure the distributed computing does not fail. Multiple copies of all data are stored automatically.
- Flexibility: unlike traditional relational database, you don't have to preprocess data before storing it. You can store as much data as you want and decide how to use it later. That includes unstructured data like text, images and videos.
- Low cost: the open source frame work is free and uses commodity hardware to store large quantities of data.
- Scalability: you can easily grow your system to handle more data simply by adding nodes. Little administration is required.

When to use Hadoop?

- Search: Yahoo, Amazon, events
- Log processing: Facebook, yahoo
- Data warehouse: Facebook, AOL
- Video and image analysis: New York times, eye alike.

When to not use Hadoop?

- Low latency data access:- Quick access to small parts of data

- Multiple data modification:- Hadoop is a better fit only big we are primarily concerned about reading data and not modifying data.
- Lots of small files:- Hadoop is suitable for scenarios, where we have few but large files.

Hema B. I BCA

SaaS APPLICATION

Software as a Service (SaaS) is a software distribution model in which a third-party provider hosts application and makes them available to customers over the internet. SaaS is one of three main categories of cloud computing, alongside infrastructure as a service (IaaS), and platform as a service (PAAS).

SaaS is closely related to the Application Service Provider(APS) and on demand computing software delivery models. The hosted applications management model of SaaS is similar to APS, where the provider hosts the customers software and deliver it to approved end users over the internet. In the software on demand SaaS model, the provider gives customers network-based access to a single copy of an application that the provider created specifically for SaaS distribution. The applications source code is the same for all customers and when new features or functionalities are rolled out, they are rolled out to all customers. Depending upon the service level agreement, the customers data for each model may be stored locally, in the cloud for each or both locally and in the cloud. Organizations can integrate SaaS applications with other software using application programming interface(APIs). For example, a business can write its own software tools and use the SaaS providers APIs to integrate those with the SaaS offering.

There are SaaS applications for fundamental business technologies, such as email, sales management, customer relationship management (CRM), financial management, human resource management(HRM), billing and collaborations. Leading SaaS providers includes salesforce ,oracle, SAP intuit and Microsoft.

SaaS applications are used by a range of IT professionals and business users, as well as c-level executives. SaaS removes the need for applications to install and run applications on their own computers or in their own data centers. This eliminates the expense of hardwarequisition, provisioning and maintenance as well as software licensing installation and support. Flexible payments, Scalable usage, Automatic updates, Accessibility are other benefits of SaaS model.

Pooja S K. II BCA

ARDUINO

Arduino is an open-source hardware and software company, project and user community that designs and manufactures single-board microcontrollers and microcontroller kits for

building digital devices and interactive objects that can sense and control both physically and digitally. Its products are licensed under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL) permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially in preassembled form or as Do It Yourself (DIY) kits.

Arduino board designs use a variety of microprocessors and controllers. The boards are equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards or breadboards and other circuits. The boards feature so serial communications interfaces, including universal Serial Bus (USB) on some models.

Anusha H
I BCA

SOPHIA

Sophia is a social humanoid robot developed by Hongkong based company Hanson Robotics. Sophia was activated on February 14, 2016, and made its first public appearance at South by Southwest festival, In mid-March 2016 in Austin, Texas, United States. It is able to display more than 50 facial expressions.

Sophia has been covered by media around the globe and has participated in many high profile interviews. In October 2017, Sophia became the first robot to receive citizenship of any country. In November 2017, Sophia was named the United Nations Development Programmes first ever Innovation Champion, and is the first non-human to be given any United Nations title.

Asha Sharma S
II BCA



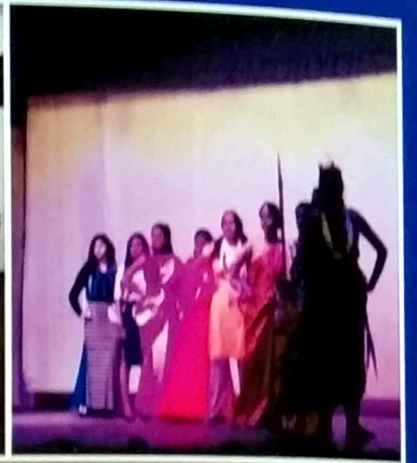
BCA TOPPER
2016-19 BATCH

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Empowering Activities



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Higher Versions Of
Thoughts And Knowledge
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Think Better

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