

IT BITZ

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DEPARTMENT OF INFORMATION TECHNOLOGY

Volume 5, Issue 2

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(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

S.P.G.Chidambara Nadar - C.Nagammal Campus

S.P.G.C.Nagar, K.Vellakulam - 625 701, (Near Virudhunagar), Madurai District.

VISION OF THE INSTITUTION

To make this Institution the unique of its kind in the field of Research and Development activities in this part of world.

MISSION OF THE INSTITUTION

To impart highly innovative and technical knowledge to the urban and unreachable rural student folks through "Total Quality Education".

QUALITY POLICY

Committed to impart Quality Technical Education imbued with proficiency, human values and continual improvement.

DEPARTMENT OF INFORMATION TECHNOLOGY

VISION OF THE DEPARTMENT

To make the department of Information Technology the unique of its kind in the field of Research and Development activities in this part of world.

MISSION OF THE DEPARTMENT

To impart highly innovative and technical knowledge in the field of Information Technology to the urban and unreachable rural student folks through Total Quality Education.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: Graduates of the programme will exhibit expertise in technical knowledge by applying distinctive skills in various fields of Information Technology

PEO 2: Graduates will become pioneers in the field of IT by working collaboratively and providing solutions to meet societal needs through persistent learning

PEO 3: Graduates will be able to adopt innovative practices and contribute towards research and technological development in the field of IT through Total Quality Education

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Engineering Graduates will be able to:

1. **Design an algorithm, process or component** to address its real time needs in the field of Information Technology through analytical skills.
2. **Ability to adopt the evolutionary changes** in computing and pursue a career in IT and IT enabled industries.

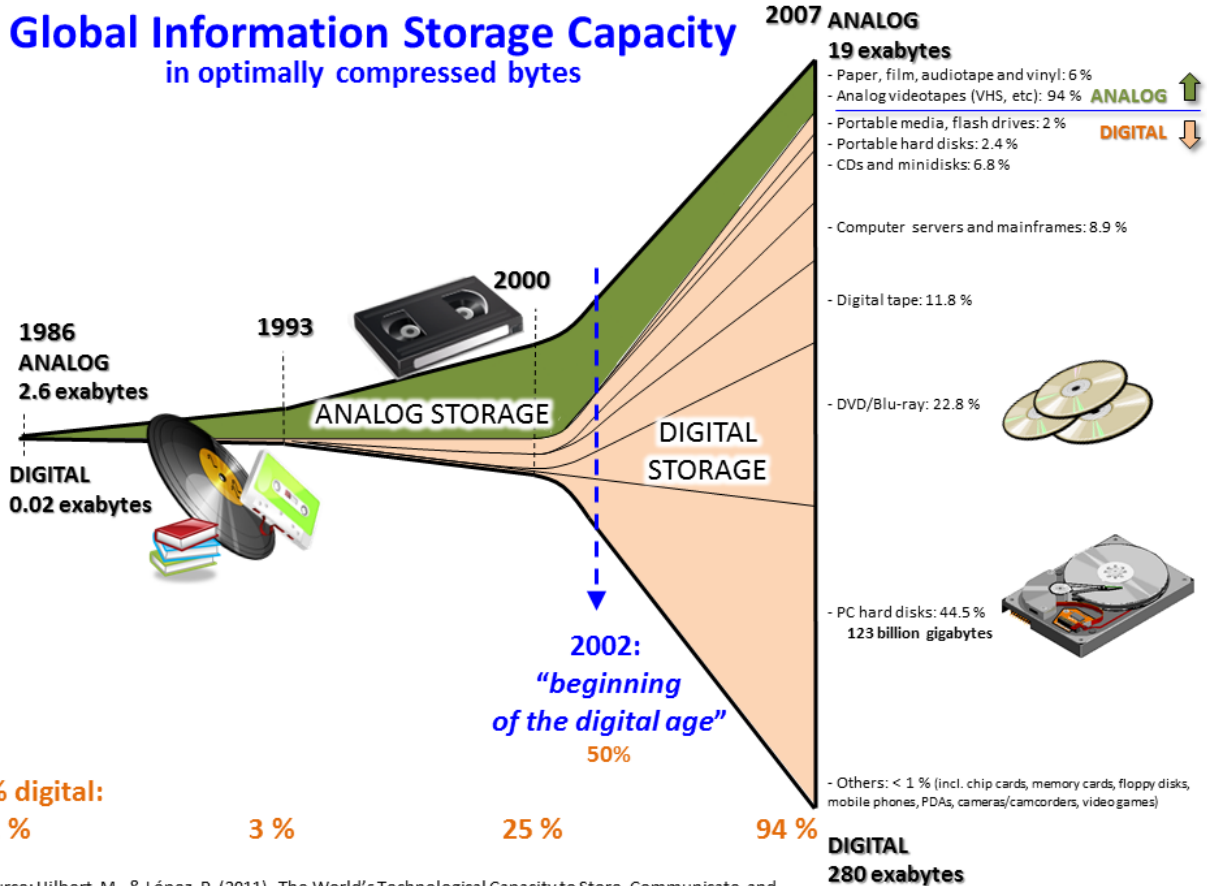
ABOUT THE DEPARTMENT

Information Technology department was established in the year 2001 and has 09 well qualified faculty members expertise in various fields of Information Technology and can exert a dedicated work to produce high caliber technocrats. Of them, four have completed their doctoral degree, four of them are pursuing their doctoral degrees and one has PG degree. Department offers the value added courses on Full Stack Developer to impart the knowledge in students to satisfy the industrial needs.

HEAD OF THE DEPARTMENT

Dr. P. Subathra Heads the Department of Information Technology since August 2015. She received her Doctorate in Philosophy in the field of Information and Communication Engineering from Anna University, Chennai. She completed her PG in Computer Science and Engineering & UG in Electrical and Electronics Engineering from Madurai Kamaraj University, Madurai. Her area of interest includes Networks and Network Security. Under her guidance, one scholar has completed Doctoral Degree. Also she is guiding one research scholar under Anna University, Chennai. She has published around 10 international journals and conferences for her credit. She has given guest lecture in various institutions on Network Security, Soft Computing and IoT.

KNOWLEDGE ENRICHMENT – BIG DATA



Source: Hilbert, M., & López, P. (2011). The World's Technological Capacity to Store, Communicate, and Compute Information. *Science*, 332(6025), 60–65. <http://www.martinhilbert.net/WorldInfoCapacity.html>

What is Big Data?

Big data is a field that treats ways to analyze, systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with by traditional data-processing application software. Data with many fields (columns) offer greater statistical power, while data with higher complexity (more attributes or columns) may lead to a higher false discovery rate. Big data analysis challenges include capturing data, data storage, data analysis, search, sharing, transfer, visualization, querying, updating, information privacy and data source. Big data was originally associated with three key concepts: *volume*, *variety*, and *velocity*. The analysis of big data presents challenges in sampling, and thus previously allowing for only observations and sampling. Therefore, big data often includes data with sizes that exceed the capacity of traditional software to process within an acceptable time and *value*.

Current usage of the term *big data* tends to refer to the use of predictive analytics, user behavior analytics, or certain other advanced data analytics methods that extract value from big data, and seldom to a particular size of data set. "There is little doubt that the quantities of data now available are indeed large, but that's not the most relevant characteristic of this new data ecosystem." Analysis of data sets can find new correlations to "spot business trends, prevent diseases, combat crime and so on." Scientists, business executives, medical practitioners, advertising and governments alike regularly meet difficulties with large data-sets in areas including Internet searches, fintech, healthcare analytics, geographic information systems, urban informatics, and business informatics. Scientists encounter limitations in e-Science work, including meteorology, genomics, connectomics, complex physics simulations, biology and environmental research.

The size and number of available data sets has grown rapidly as data is collected by devices such as mobile devices, cheap and numerous information-sensing Internet of things devices, aerial (remote sensing), software logs, cameras, microphones, radio-frequency identification (RFID) readers and wireless sensor networks. The world's technological per-capita capacity to store information has roughly doubled every 40 months since the 1980s; as of 2012, every day 2.5 exabytes (2.5×2^{60} bytes) of data are generated. Based on an IDC report prediction, the global data volume was predicted to grow exponentially from 4.4 zettabytes to 44 zettabytes between 2013 and 2020. By 2025, IDC predicts there will be 163 zettabytes of data.^[11] One question for large enterprises is determining who should own big-data initiatives that affect the entire organization.

Architecture

Big data repositories have existed in many forms, often built by corporations with a special need. Commercial vendors historically offered parallel database management systems for big data beginning in the 1990s. For many years, WinterCorp published the largest database report.

Teradata Corporation in 1984 marketed the parallel processing DBC 1012 system. Teradata systems were the first to store and analyze 1 terabyte of data in 1992. Hard disk drives were 2.5 GB in 1991 so the definition of big data continuously evolves according to Kryder's law. Teradata installed the first petabyte class RDBMS based system in 2007. As of 2017, there are a few dozen petabyte class Teradata relational databases installed, the largest of which exceeds 50

PB. Systems up until 2008 were 100% structured relational data. Since then, Teradata has added unstructured data types including XML, JSON, and Avro.

In 2000, Seisint Inc. (now LexisNexis Risk Solutions) developed a C++-based distributed platform for data processing and querying known as the HPCC Systems platform. This system automatically partitions, distributes, stores and delivers structured, semi-structured, and unstructured data across multiple commodity servers. Users can write data processing pipelines and queries in a declarative dataflow programming language called ECL. Data analysts working in ECL are not required to define data schemas upfront and can rather focus on the particular problem at hand, reshaping data in the best possible manner as they develop the solution. In 2004, LexisNexis acquired Seisint Inc. and their high-speed parallel processing platform and successfully used this platform to integrate the data systems of Choice point Inc. when they acquired that company in 2008. In 2011, the HPCC systems platform was open-sourced under the Apache v2.0 License.

CERN and other physics experiments have collected big data sets for many decades, usually analyzed via high-throughput computing rather than the map-reduce architectures usually meant by the current "big data" movement.

In 2004, Google published a paper on a process called MapReduce that uses a similar architecture. The MapReduce concept provides a parallel processing model, and an associated implementation was released to process huge amounts of data. With MapReduce, queries are split and distributed across parallel nodes and processed in parallel (the "map" step). The results are then gathered and delivered (the "reduce" step). The framework was very successful, so others wanted to replicate the algorithm. Therefore, an implementation of the MapReduce framework was adopted by an Apache open-source project named "Hadoop".^[38] Apache Spark was developed in 2012 in response to limitations in the MapReduce paradigm, as it adds the ability to set up many operations (not just map followed by reducing).

Applications

Big data has increased the demand of information management specialists so much so that Software AG, Oracle Corporation, IBM, Microsoft, SAP, EMC, HP and Dell have spent more than \$15 billion on software firms specializing in data management and analytics. In 2010, this industry was worth more than \$100 billion and was growing at almost 10 percent a year: about twice as fast as the software business as a whole.

Developed economies increasingly use data-intensive technologies. There are 4.6 billion mobile-phone subscriptions worldwide, and between 1 billion and 2 billion people accessing the internet.^[4] Between 1990 and 2005, more than 1 billion people worldwide entered the middle class, which means more people became more literate, which in turn led to information growth. The world's effective capacity to exchange information through telecommunication networks was 281 petabytes in 1986, 471 petabytes in 1993, 2.2 exabytes in 2000, 65 exabytes in 2007 and predictions put the amount of internet traffic at 667 exabytes annually by 2014. According to one estimate, one-third of the globally stored information is in the form of alphanumeric text and still image data, which is the format most useful for most big data applications. This also shows the potential of yet unused data (i.e. in the form of video and audio content).

While many vendors offer off-the-shelf solutions for big data, experts recommend the development of in-house solutions custom-tailored to solve the company's problem at hand if the company has sufficient technical capabilities.

- **NANDHINI S**
18UITE007

FACULTY ACHIEVEMENTS

FDP/Workshop/STTP/Certification Pogrammes attended

S.No	FDP/ Workshop/ STTP/ Summer Schools etc. .	Name of the faculty	Name of the Programme	Date	Organizing Institution	Participate d/ Presented
1	FDP	Dr. P.SUBATH RA	Blockchain, Innovation, Industry AI Solutions & Application Security to DevSecOps	07.12.2020 to 09.12.2020	PALs	Participated
2	FDP	Dr. R. ARTHY	Blockchain, Innovation, Industry AI Solutions & Application Security to DevSecOps	07.12.2020 to 09.12.2020	PALs	Participated
3	PALS	Dr.M.Chengath ir Selvi	How Teachers can Make a Difference	02.12.2020 - 04.12.2020	Teaching Learning Center (TLC), Indian Institut e of Madras, Chennai	Participated
4	PALS	D. Vendhan	How Teachers can Make a Difference	02.12.2020 - 04.12.2020	Teaching Learning Center (TLC), Indian Institut	Participated

					e of Madras, Chennai	
5	ATAL FDP	D.Kayathri Devi	Augmented Reality and Virtual Reality	15.12.2020 to 19.12.2020	Department of Computer Science Engineering, Dr.Mahalinga m College of Engineering, Pollachi	Participaed
6	PALS FSDP	Dr.E.Vakaimal ar	Project Management	21.11.2020, 28.11.2020,0 5.12.2020, and 06.12.2020(4 half days)	PALS	Participated

PLACEMENT CORNER

Sl.No	Roll No	Student Name	Month of Interview	Company	Annual Package(in Rs.)
1	17UITE010	PRAVEEN RAJAN M.N	29.12.2020	TCS	3.36 LPA
2	17UITE012	DIVYA BHARATHI R	29.12.2020	TCS	3.36 LPA
3	17UITE013	SUNDARESWARI B	29.12.2020	TCS	3.36 LPA

COMPANY PROFILE

Tata Consultancy Services (TCS) is an Indian multinational technology company that specializes in information technology (IT) services and consulting, headquartered in Mumbai, Maharashtra, India. and has its largest workforce based in Chennai, Tamil Nadu, India. As of February 2021 TCS is largest company in the IT sector in the world by Market capitalisation of \$169.2 billion. It is a subsidiary of the Tata Group and operates in 149 locations across 46 countries.

TCS is the second largest Indian company by market capitalisation. Tata consultancy services is now placed among the most valuable IT services brands worldwide. In 2015, TCS was ranked 64th overall in the *Forbes* World's Most Innovative Companies ranking, making it both the highest-ranked IT services company and the top Indian company. As of 2018, it is ranked eleventh on the Fortune India 500 list. In April 2018, TCS became the first Indian IT company to reach \$100 billion in market capitalisation, and second Indian company ever (after Reliance Industries achieved it in 2007) after its market capitalisation stood at ₹6,79,332.81 crore (\$102.6 billion) on the Bombay Stock Exchange.

In 2016–2017, Parent company Tata Sons owned 72.05% of TCS; and more than 70% of Tata Sons' dividends were generated by TCS. In March 2018, Tata Sons decided to sell stocks of TCS worth \$1.25 billion in a bulk deal.

-PRAVEEN RAJAN.M.N

17UITE010

THINK!!!

The future of women in India is quite bright and let us hope that they will justify their abilities by rising to the occasion. Napoleon was right when he declared that by educating the women we can educate the whole nation. Because a country can never rise without the contribution of 50% of their population.

The passage best supports the statement that:

- A. India is striving hard for the emancipation of women.
- B. all women should be well educated.
- C. a nation can progress only when women are given equal rights and opportunities as men.
- D. women ought to be imparted full freedom to prove their worth and contribute to the progress of the nation.

ANSWER:

OPTION:D

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