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கே. எல். என் பொறியியல் கல்லூரி K.L.N. COLLEGE OF ENGINEERING

Pottapalayam-630612, (11km from Madurai City) Sivagangai District, Tamil Nadu, India.

(Sponsored by K.L.N Sourashtra College of Engineering Council, Madurai)

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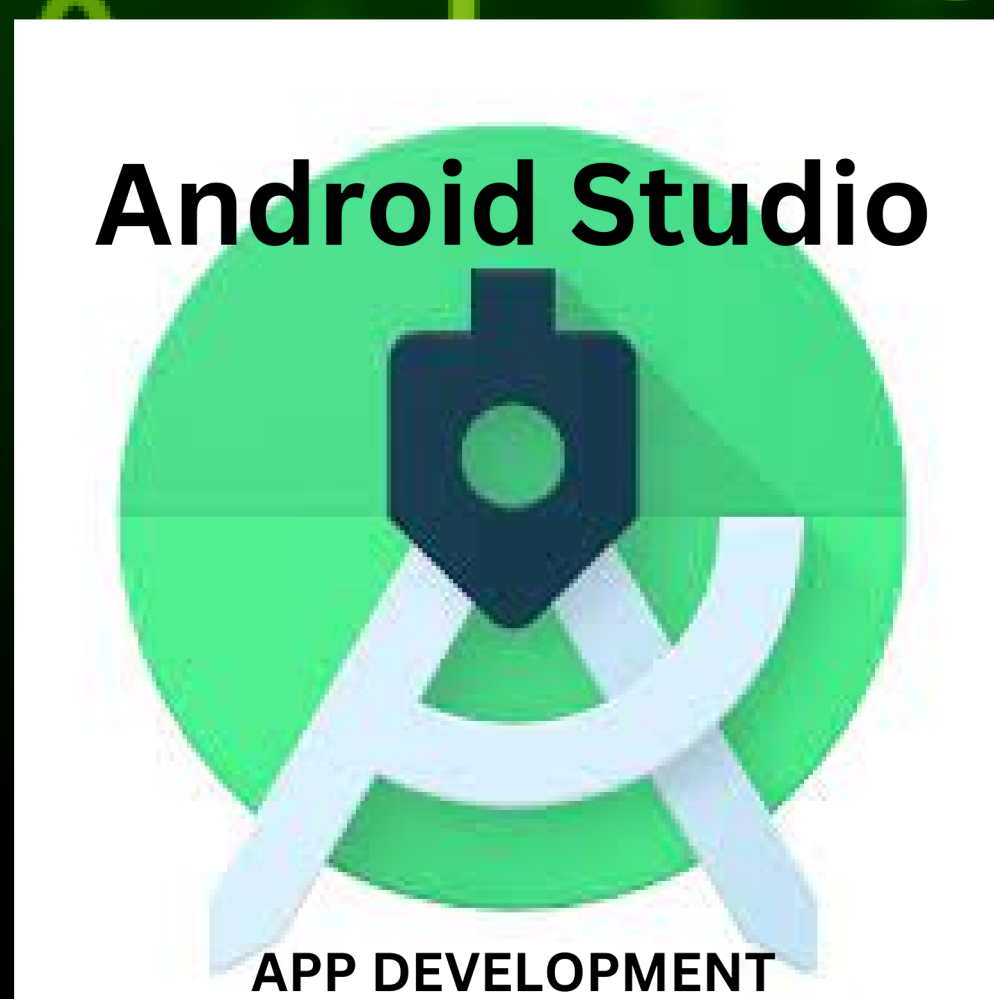


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Amarar
Shri K.L.N. KRISHNAN



Founder President
(1918-2001)





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INTERFACE **VISION OF THE INSTITUTION** **NEWSLETTER**

"There's Nothing called giving up!"

VISION OF THE INSTITUTION

To become a Centre of Excellence in Technical Education and Research in producing Competent and Ethical professionals to the society

MISSION OF THE INSTITUTION

To impact value and need based curriculum to the students with enriched skill development in the field of Engineering, Technology, Management and Entrepreneurship and to nurture their character with social concern and to pursue their career in the area of Research and Industry



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION OF THE DEPARTMENT

To be a competent Professional in the field of Computer Science & Engineering through quality education, training and innovative research

MISSION OF THE DEPARTMENT

- Imparting proficient education through quality teaching – learning process in tune with the interdisciplinary needs of global work environment.
- Inculcating the attitude of continuous learning through industry institution interaction, consultancy and research activities.
- Cultivating professionalism, Ethics and integrity of character for positive contributions to society.



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Principal's Message

As students are the members of the progressive society, the teachers shall not fight today's battle with yesterday's weapon, but they must prepare them to face all the eventualities of life. Thus teachers are the architects of a country. Consequently, the true education should deepen our insight, widen our horizon and create a meaningful outlook. Fortunately, the students are born in a free nation, with all the facilities to shape their careers in such a way, that they should be a part of good and healthy society with progressive attitude towards divinity.

HOD's Message

My appeal to all my dear students is to attend all the classes, make use of the libraries extensively and read text books regularly and take part in technical paper presentations and seminars and undergo training in various, skill sets, so that, they will not face difficult times in their professional careers, since they will be mostly on standalone mode. In this respect, I humbly request the parents and guardians to show more interest in their wards day to day activities and overall performance. Parents are also requested to attend the parents association meeting held by the college



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EDITOR'S WORDS

Dear Students,

A warm welcome to the latest issue of our Departments Newsletter INTERFACE for the year 2021-22. The objectives of the Newsletter are:

-To recognize the achievements of students and faculty of our department.

-The showcase the works and talents of our students and faculty.

I congratulate all my team for their constant efforts in bringing out this Newsletter, We are grateful to the Management, EO, and Our Principal for the constant support.

EDITING TEAM

EDITOR IN-CHIEF

Dr. P.R. Vijayalakshmi (Professor and Head)

EDITORS

Dr. S. Miruna Joe Amali (Professor)

Dr. R. Lakshmi (ASP/CSE)

Dr. P. Prem Kumar (ASP/CSE)

Mrs. S. Venkatalakshmi (AP/CSE)

STUDENT INCHARGE

Mr. M.N THARIQAJEES, 3rd yr, CSE



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ABOUT OUR DEPARTMENT

Computer Science is taking over the world by storm. Computer Science and Engineering as a branch caters to all the needs of the fast paced world of technology.

Computer Science and Engineering demands a blend of creative and technical skills. Computer Science and Engineering graduates are widely employed in the software industries throughout the world. Taking this in mind, the department is always committed in creating the engineers that the future demands.





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PROGRAMME EDUCATIONAL OBJECTIVES (PEO's)

PEO I: Contribute effectively to the society by applying principles of computer science and engineering for analyzing the real world problems to produce Optimal and acceptable technical solutions.

PEO II: Sustain as good professionals by pursuing career / advanced studies and practice innovation in emerging technologies through lifelong learning.

PEO III: Build professionalism, team work, effective communication, ethical values and leadership qualities

PROGRAMME SPECIFIC OUTCOMES (PSO's)

PSO 1: Ability to apply good analytical, design and implementation skills to formulate and solve scientific and business applications pertaining to Algorithms, Computer Systems, Networks, Security, Data Analytics and Artificial Intelligence.

PSO 2: Ability to update knowledge continuously in the tools like Rational Rose, MS VISIO, NS, VMware workstation, Mobile Application Development tools and technologies like storage, Computing, communication to meet the industry requirements.



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Salient Features of the Department

1. General

- Started offering B.E. in Computer Science and Engineering in the year 1997 with an intake of 40 (No - 730-52-227(E)/ET/97, dated 29th August, 1997, AICTE) with the latest intake of 120 in 2022 (F.No. Southern/1-10975962064 dated 07-July 2022).
- Accredited in May 2007 (First time - F.No.NBA/ACCR-242'2003, dated 22 nd May 2007) and Re-accredited (Second time - F.No.33-01/2010-NBA, dated 14 th Aug.2013) by National Board of Accreditation, New Delhi.
- Accredited under Outcome Based Education in February 2017 (F.No.33-01/2010-NBA, dated 04th Feb.2017) and Re-accredited (Compliance - F.No.33-01/2010-NBA, dated 22-03-2019) by National Board of Accreditation, New Delhi.

2. Infrastructure

- Programming and Data Structures Laboratory, Advanced Computing Laboratory, Software Development and Simulation Laboratory, Project Laboratory, Research Laboratory are equipped with systems, software, internet with Wi-Fi facilities.
- Latest software on Web Technology, Operating System, Computer Graphics, System Software, Internet Programming, Cloud Computing are available to study, solve, design, code, implement and test the software problems to experience the real time results.
- All the class rooms are equipped with computer systems and LCD to promote the Teaching – Learning Process more effectively.
- Separate library facility for CSE students with 2287 books and volumes for core subjects and hard copies of IEEE Journals and magazines is available for reference. Staff and student can access the softcopy of Journals, Proceedings published by IEEE, ASME, Mc Graw Hill.
- All the laboratories are provided with sufficient computing facilities, printing facility with internet connection to encourage laboratory experiments.



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3. Staff

- Teams of well qualified, and experienced faculties with cadre ratio as per AICTE, are guiding the students to attain the best educational objectives.
- Excellent research environment promotes the staff and students to participate, present and publish their research works in the National/ International Journals and National International Conferences.
- Facility and experienced faculty available for guiding Ph.D. Scholars.
- Faculty Development Programme / Workshop / Seminar are organized regularly to share the knowledge of our experienced faculty with parent institution and other colleges' staff and students and Industry persons.

4. Staff with Ph.D

S.No	Name	Faculty	Specialization
1.	Dr. P.R. Vijayalakshmi	Information and Communication Engineering	Network Security
2.	Dr. S. Miruna Joe Amali		Optimization Techniques
3.	Dr.R.Lakshmi		Text Mining, Information Retrieval
4.	Dr.P.Premkumar		Cloud Computing
5.	Dr.S.Subashini		Data Mining
6.	Dr. R.Karthick		VLSI



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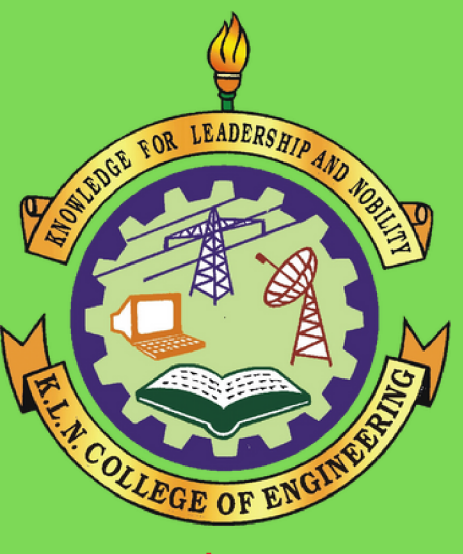
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5. Research Activities

- The Research work, Industrial Projects and Patentable Projects related activities are carried out in the exclusive Research Laboratory in areas like wireless networks, Optimization algorithms, network security and big data analytics and data mining.
- In order to discuss about the latest trends and research issues, the department conducts at least one faculty development programme per semester. Senior faculty members are regularly sending their proposal to Government funding agencies for organizing workshop, Seminar, Conferences and research.
- In order to get practice in the latest tools and systems, department actively works in association with Infosys, Honeywell and ICT Academy.
- Staff members are regularly attending seminars, workshops, conferences and competitions in order to develop their skills according to the latest developments and requirements.

6. Students

- High caliber students are identified and encouraged to pursue higher studies. Alumni are now working in reputed institutions.
- Students secured several University Ranks including Gold Medal in 2013 (UG-CSE) among 8500 students studied in 540 Engineering colleges all over Tamil Nadu.
- CSI and ISTE student's chapter are continuously conducting number of student technical programmes. Guest lecture from industries have been arranged periodically to promote industry – institute interaction and to bridge the gap between curriculum and latest trend in industry.
- To promote innovation, latest trends in industry and employability skills, student's professional activities are conducted every year in the name of symposium and conferences.
- Workshop/Seminar is regularly conducted for students to meet out the curriculum objectives.



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- Implant trainings are arranged for second and third year students to have hands on training in industry. Industrial visits are arranged every semester to know about the latest development process in Industry.
- Placement oriented training programme are conducted every semester right from the first year to develop soft skills, attitude, aptitude, self confidence, communication skills, interview skills, etc. so as to face the campus placement programme organized by the college. Professional Trainers from software companies, Bangalore, Chennai are being invited for such training programme.
- Various reputed certificate program like Infosys Foundation Program, IBM Certifications, HP academic program certifications, Oracle certifications, EMC storage certification, java certification, Dot net certifications are conducted.
- Students are encouraged to participate in various mini projects as well as project competitions to display their talents and develop project knowledge along with product development.
- Students are guided to involve in consultancy projects in order to get exposure about the industry requirements.



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Articles

BIG DATA COMPUTING

What is Big data ?

Big data refers to data sets that are too large or complex to be dealt with by traditional data-processing application software. Data with many fields (rows) offer greater statistical power, while data with higher complexity (more attributes or columns) may lead to a higher false discovery rate.

Characteristics of Big Data

- **Volume**

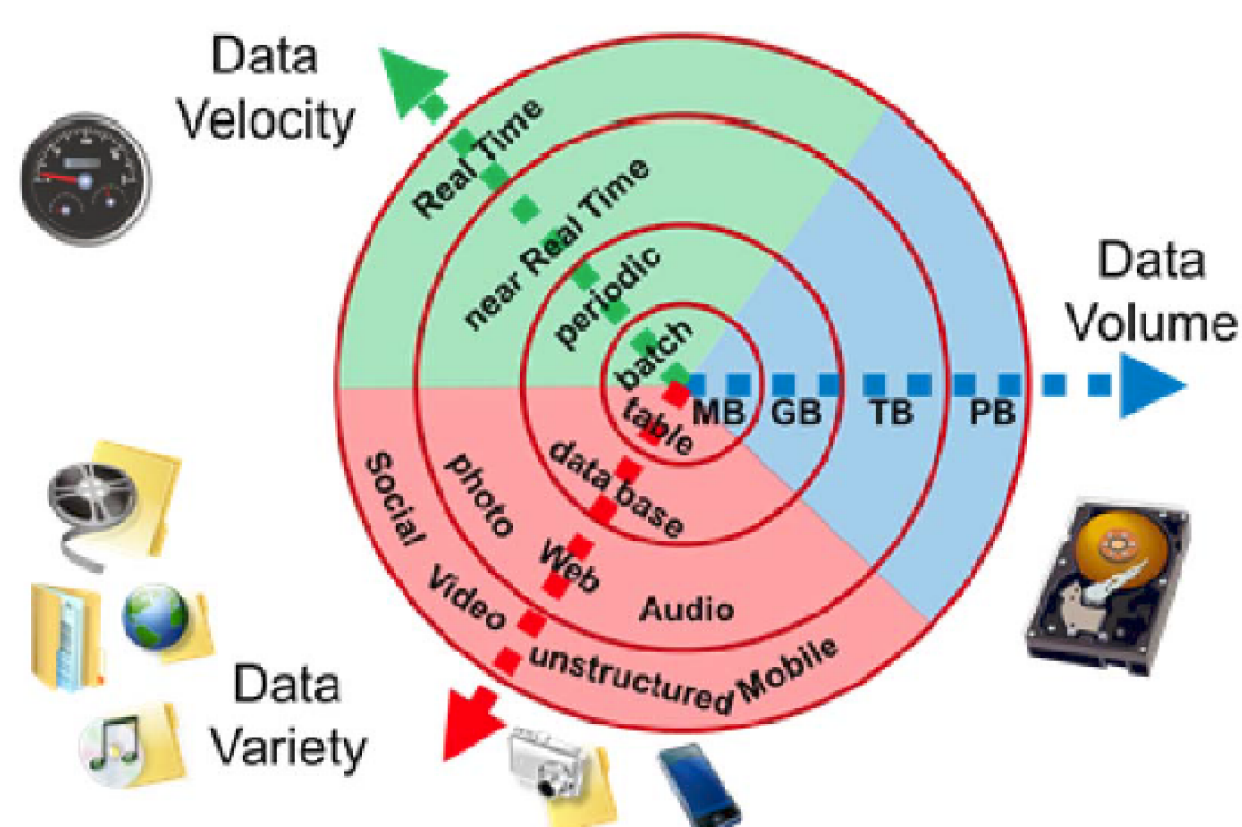
The quantity of generated and stored data. The size of the data determines the value and potential insight, and whether it can be considered big data or not. The size of big data is usually larger than terabytes and petabytes.

- **Velocity**

The speed at which the data is generated and processed to meet the demands and challenges that lie in the path of growth and development. Big data is often available in real-time. Compared to small data, big data is produced more continually. Two kinds of velocity related to big data are the frequency of generation and the frequency of handling, recording, and publishing.

- **Veracity**

The truthfulness or reliability of the data, which refers to the data quality and the data value.[37] Big data must not only be large in size, but also must be reliable in order to achieve value in the analysis of it.





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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.[41][promotional source?]

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. 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.[42] and their high-speed parallel processing platform and successfully used this platform to integrate the data systems of Choicepoint Inc.



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Applications

Bus wrapped with SAP big data parked outside IDF13.

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.[6]





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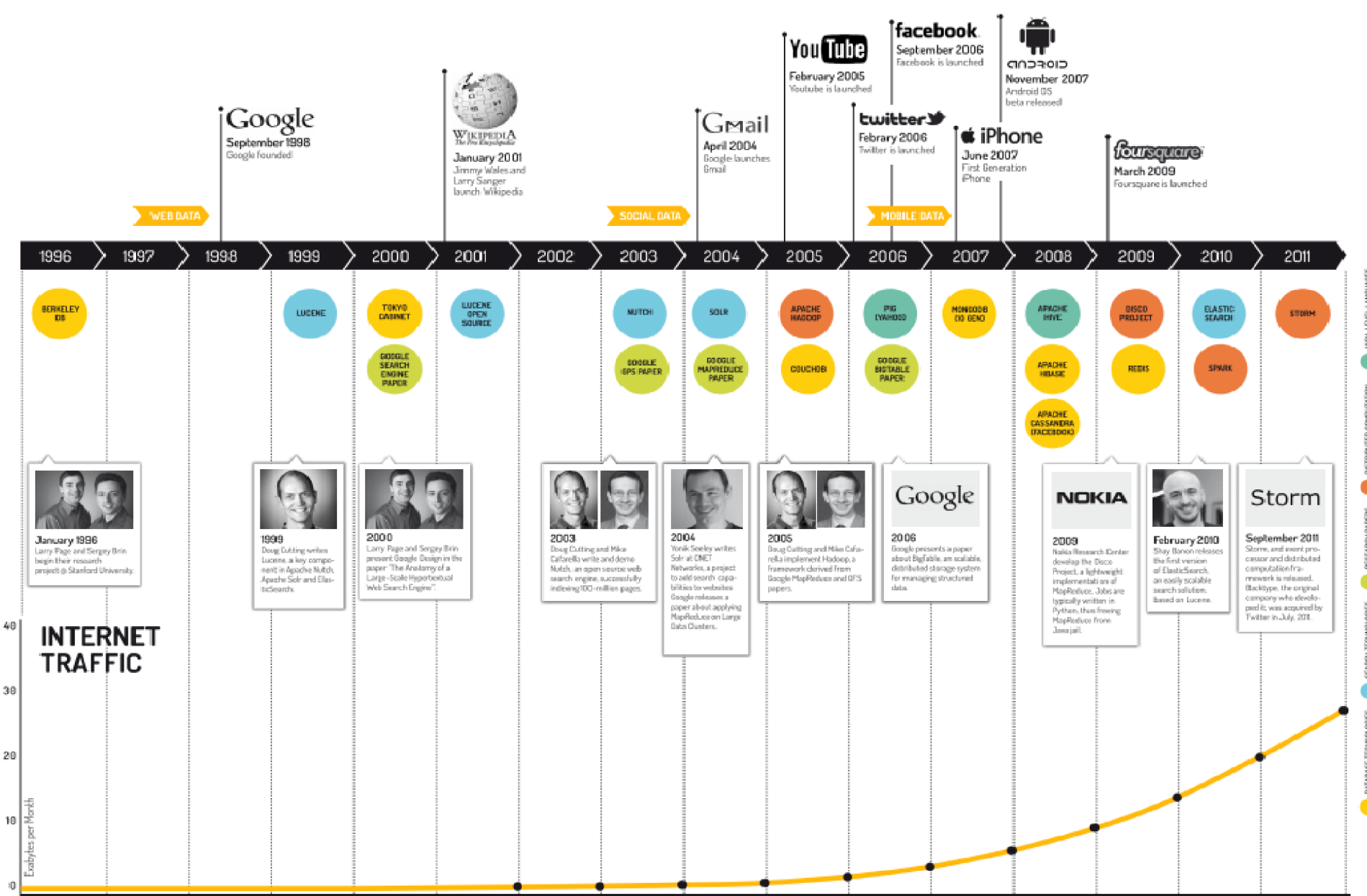
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HISTORY OF BIG DATA

BIG DATA A BRIEF HISTORY



By
THARIQAJEES M N
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ANDROID STUDIO

What is Android Studio?

It's an Android focused IDE, designed specially for Android development. It was launched on 16th May 2013, during Google's I/O 2013 event. Android studio contains all the Android SDK tools to design, test, debug and profile your app. By looking at the development tools and environment, we can see its similar to Eclipse with the ADT plug-in, but as I have mentioned above, it's an Android focused IDE, and there are many cool features available in Android Studio that can foster and increase your development productivity. One great thing is that it depends on the IntelliJ Idea IDE, which has proved itself to be a great IDE and has been in use by many Android engineers.

Cool Features of Android Studio

As I have mentioned, it's similar to Eclipse with the ADT plug-in, but Android Studio has many cool features that can help you to increase development productivity.

Here are the cool features:

- Powerful code editing (smart editing, code re-factoring)
- Rich layout Editor (As soon as you drag and drop views on the layout, it shows you a preview in all the screens including Nexus 4, Nexus 7, Nexus 10 and many other resolutions. Layout designing can be done much faster way as compared to eclipse.)
- Gradle-based build support
- Maven Support
- Template-based wizards
- Lint tool analysis (The Android lint tool is a static code analysis tool that checks your Android project source files for potential bugs and optimization improvements for correctness, security, performance, usability, accessibility, and internationalization).

You can experience all the cool features by using Android Studio yourself



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ANDROID architecture

Android architecture contains different number of components to support any android device needs. Android software contains an open-source Linux Kernel having collection of number of C/C++ libraries which are exposed through an application framework services.

Among all the components Linux Kernel provides main functionality of operating system functions to smartphones and Dalvik Virtual Machine (DVM) provide platform for running an android application.

The main components of android architecture are following:-

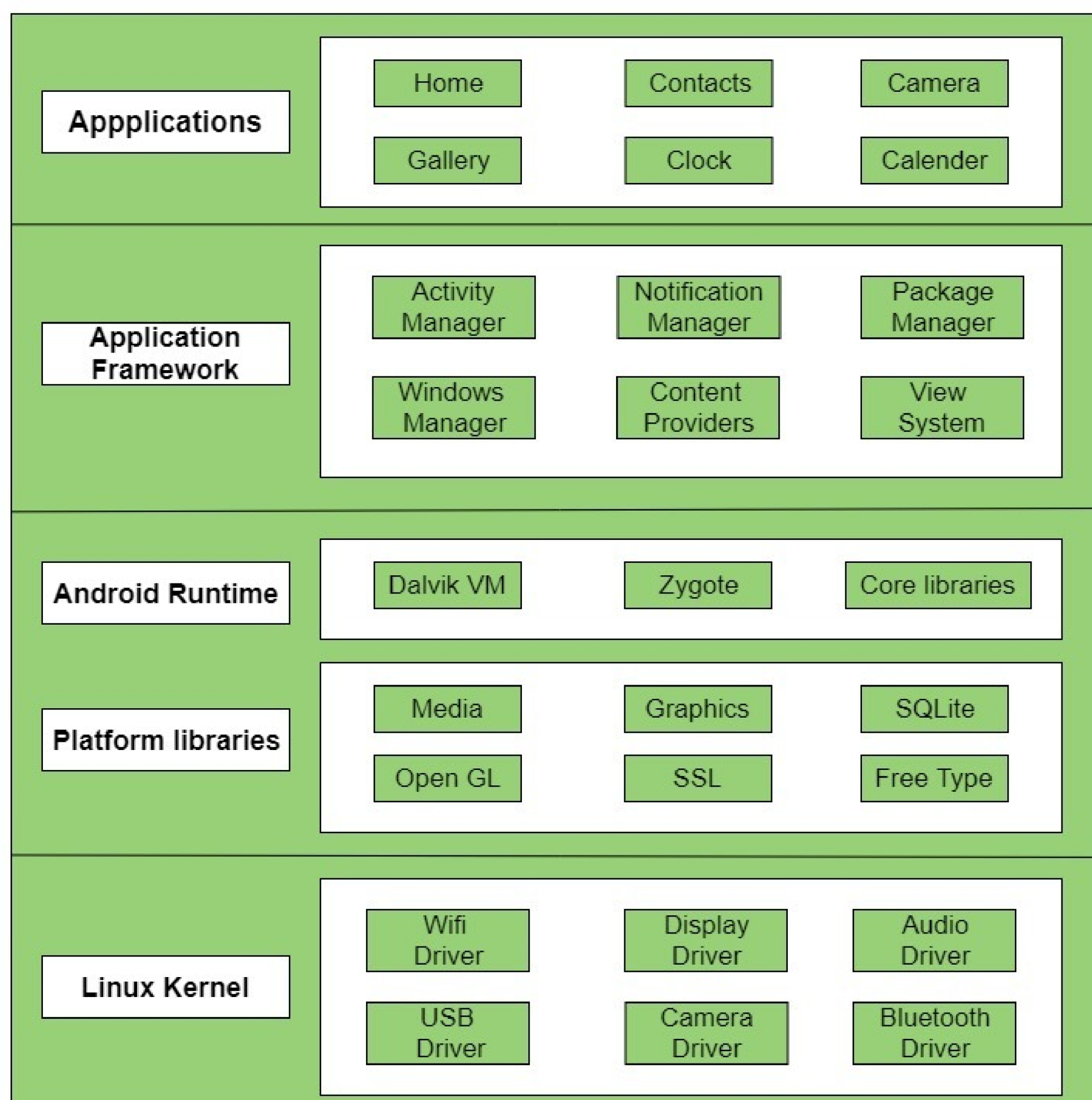
Applications

Application Framework

Android Runtime

Platform Libraries

Linux Kernel





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PROS AND CONS

➤ Advantages

- ✓ Android is open-Because it is Linux based open source.
- ✓ Multitasking
- ✓ Easy to access android app in market
- ✓ Can install and modified RAM

➤ Disadvantages

- ✓ Need internet connection
- ✓ Advertising facility disturb you
- ✓ Wasteful Battery
- ✓ Many application contain virus

ANDROID VERSIONS LIST: A COMPLETE HISTORY & FEATURES



Cupcake
1.5



Donut
1.6



Eclair
2.0/2.1



Froyo
2.2



Gingerbread
2.3



Honeycomb
3.0/3.1



Ice Cream Sandwich
4.0



Jelly Bean
4.1/4.2/4.3



KitKat
4.4



Lollipop
5.0



Marshmallow
6.0



Nougat
7.0



Oreo
8.0



Pie
9.0



android
10



android

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INTRODUCTION TO ARTIFICIAL INTELLIGENCE

INTRODUCTION:

What is artificial intelligence?

Artificial intelligence (AI) is the ability of a computer or a robot controlled by a computer to do tasks that are usually done by humans because they require human intelligence and discernment. Although there are no AIs that can perform the wide variety of tasks an ordinary human can do, some AIs can match humans in specific tasks.

- Weak AI - Focuses on one task and cannot perform beyond its limitations (common in our daily lives)
- Strong AI - Can understand and learn any intellectual task that a human being can (researchers are striving to reach strong AI)
- Super AI - Surpasses human intelligence and can perform any task better than a human (still a concept)

What Are the 4 Types of AI?

- Reactive AI uses algorithms to optimize outputs based on a set of inputs. Chess-playing AIs, for example, are reactive systems that optimize the best strategy to win the game.
- Limited memory AI can adapt to past experience or update itself based on new observations or data. Often, the amount of updating is limited (hence the name), and the length of memory is relatively short.
- Theory-of-mind AI are fully-adaptive and have an extensive ability to learn and retain past experiences. These types of AI include advanced chat-bots that could pass the Turing Test, fooling a person into believing the AI was a human being.
- Self-aware AI, as the name suggests, become sentient and aware of their own existence. Still in the realm of science fiction, some experts believe that an AI will never become conscious or "alive"



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How Is AI Used Today?

AI is used extensively across a range of applications today, with varying levels of sophistication. Recommendation algorithms that suggest what you might like next are popular AI implementations, as are chatbots that appear on websites or in the form of smart speakers (e.g., Alexa or Siri). AI is used to make predictions in terms of weather and financial forecasting, to streamline production processes, and to cut down on various forms of redundant cognitive labor (e.g., tax accounting or editing). AI is also used to play games, operate autonomous vehicles, process language, and much, much, more.

How Is AI Used in Healthcare?

In healthcare settings, AI is used to assist in diagnostics. AI is very good at identifying small anomalies in scans and can better triangulate diagnoses from a patient's symptoms and vitals. AI is also used to classify patients, maintain and track medical records, and deal with health insurance claims. Future innovations are thought to include AI-assisted robotic surgery, virtual nurses or doctors, and collaborative clinical judgment.





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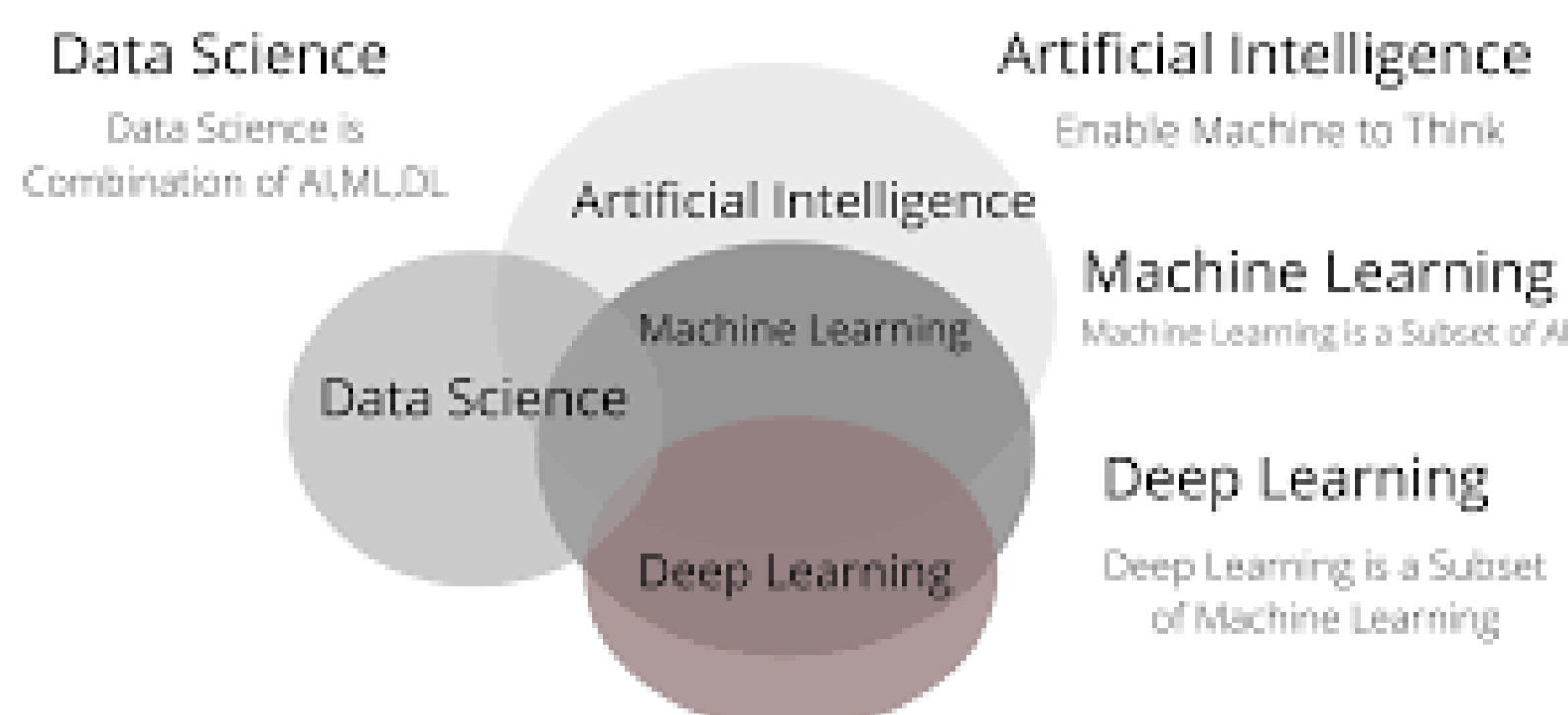
Special Considerations

Since its beginning, artificial intelligence has come under scrutiny from scientists and the public alike. One common theme is the idea that machines will become so highly developed that humans will not be able to keep up and they will take off on their own, redesigning themselves at an exponential rate.

Another is that machines can hack into people's privacy and even be weaponized. Other arguments debate the ethics of artificial intelligence and whether intelligent systems such as robots should be treated with the same rights as humans.

Self-driving cars have been fairly controversial as their machines tend to be designed for the lowest possible risk and the least casualties. If presented with a scenario of colliding with one person or another at the same time, these cars would calculate the option that would cause the least amount of damage.

Another contentious issue many people have with artificial intelligence is how it may affect human employment. With many industries looking to automate certain jobs through the use of intelligent machinery, there is a concern that people would be pushed out of the workforce. Self-driving cars may remove the need for taxis and car-share programs, while manufacturers may easily replace human labor with machines, making people's skills obsolete.



AI VS ML VS DL VS DS - Are Same !



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Applications of Artificial Intelligence

The applications for artificial intelligence are endless. The technology can be applied to many different sectors and industries. AI is being tested and used in the healthcare industry for dosing drugs and doling out different treatments tailored to specific patients, and for aiding in surgical procedures in the operating room.

Other examples of machines with artificial intelligence include computers that play chess and self-driving cars. Each of these machines must weigh the consequences of any action they take, as each action will impact the end result. In chess, the end result is winning the game. For self-driving cars, the computer system must account for all external data and compute it to act in a way that prevents a collision.

Artificial intelligence also has applications in the financial industry, where it is used to detect and flag activity in banking and finance such as unusual debit card usage and large account deposits—all of which help a bank's fraud department. Applications for AI are also being used to help streamline and make trading easier. This is done by making supply, demand, and pricing of securities easier to estimate.

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PROJECT WORKS

SMART WATER QUALITY MONITORING SYSTEM:

ABSTRACT

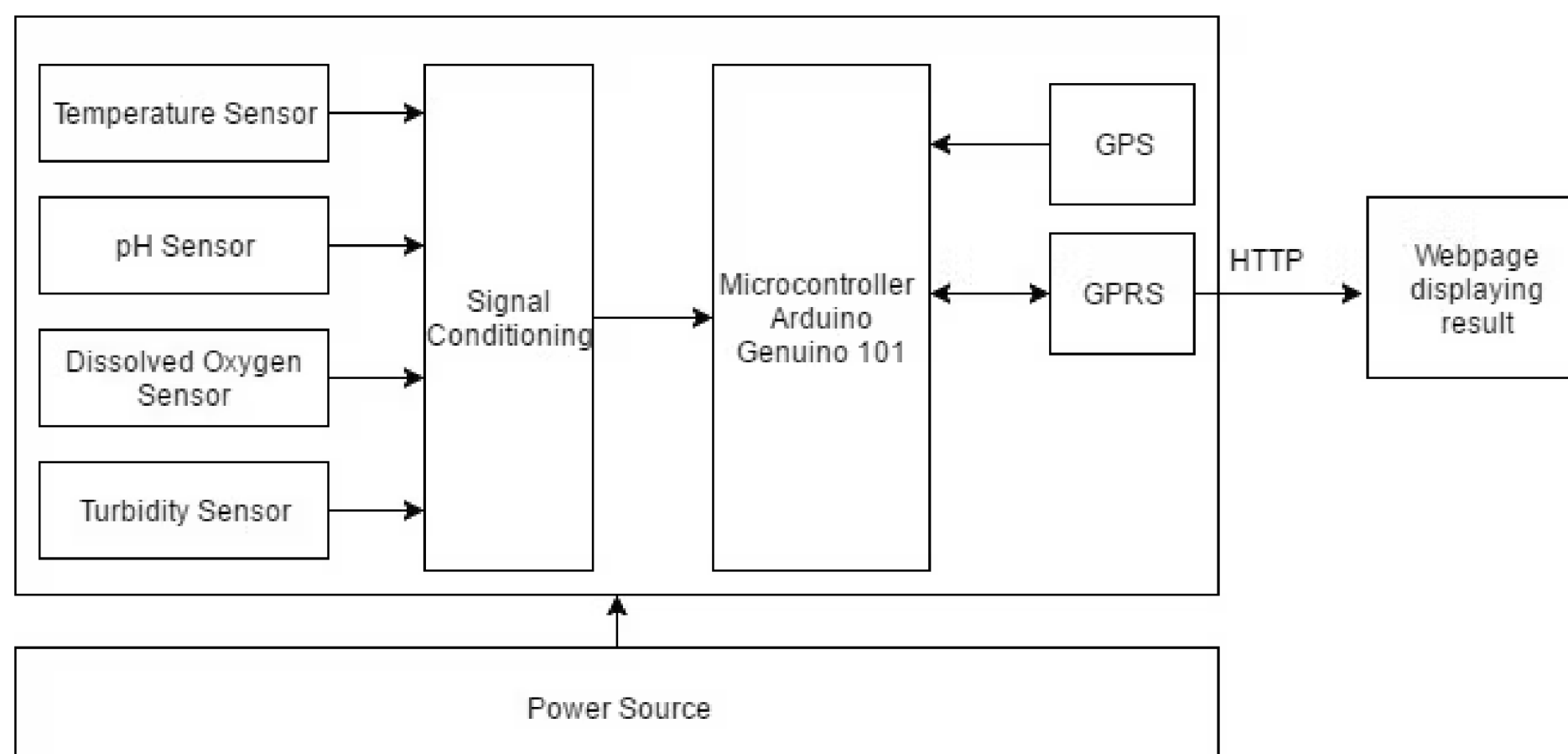
In September 2016, a water treatment plant has to be shut down because polluted water flowed into the plant. The water supply company was unable to pin point the contamination source and this caused a serious water service disruption.

My university course requires the students to build a system to solve community problems. An automated water quality monitoring system would ease the job of finding the pollution source!

The three current output sensors are from Global Water, provided by the supervising lecturer. I use temperature, pH and dissolved oxygen level sensors in this project. Unfortunately, the dissolved oxygen level sensor is faulty. The other sensor is a turbidity sensor, which output a voltage level proportional to the amount of suspended solid particles in the water.

to complete this project you need to get these specific kind of devices.

1. Arduino Mega Board.
2. (16 * 2) LCD display.
3. The 2 in one Temperature and PH sensor.
4. The Turbidity Sensor.
5. A GSM shield.
6. An ultrasonic Sensor.
7. 4 RGB led.
8. A buzzer.





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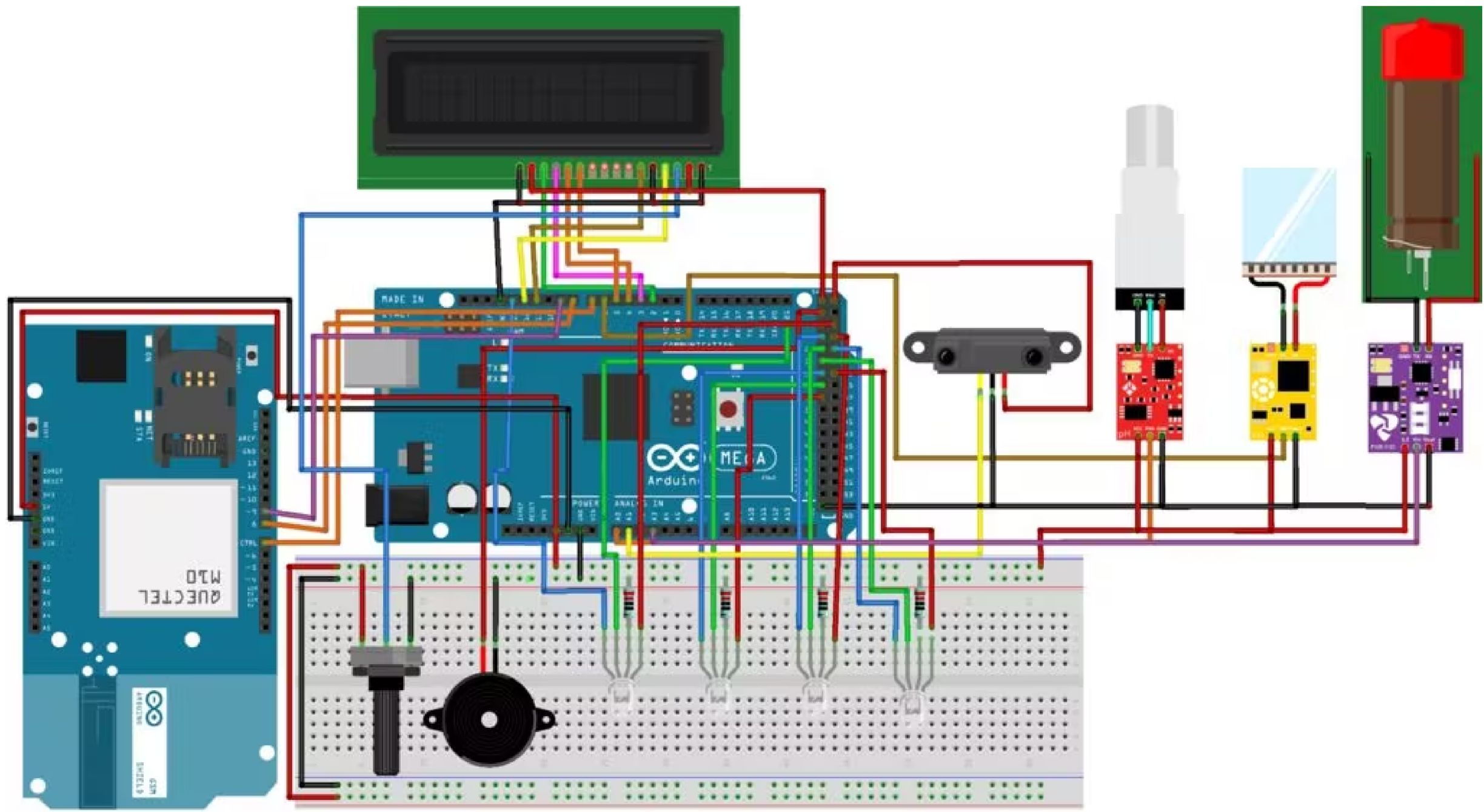


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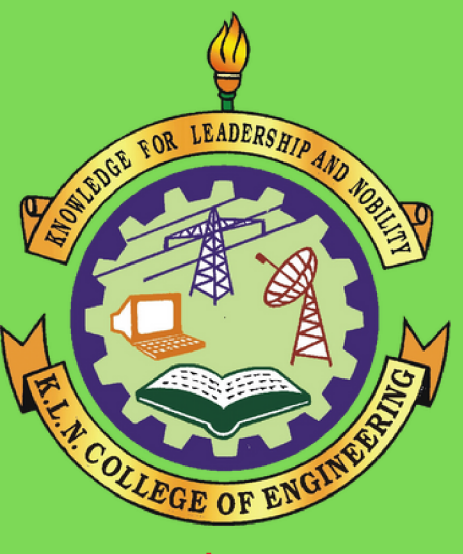


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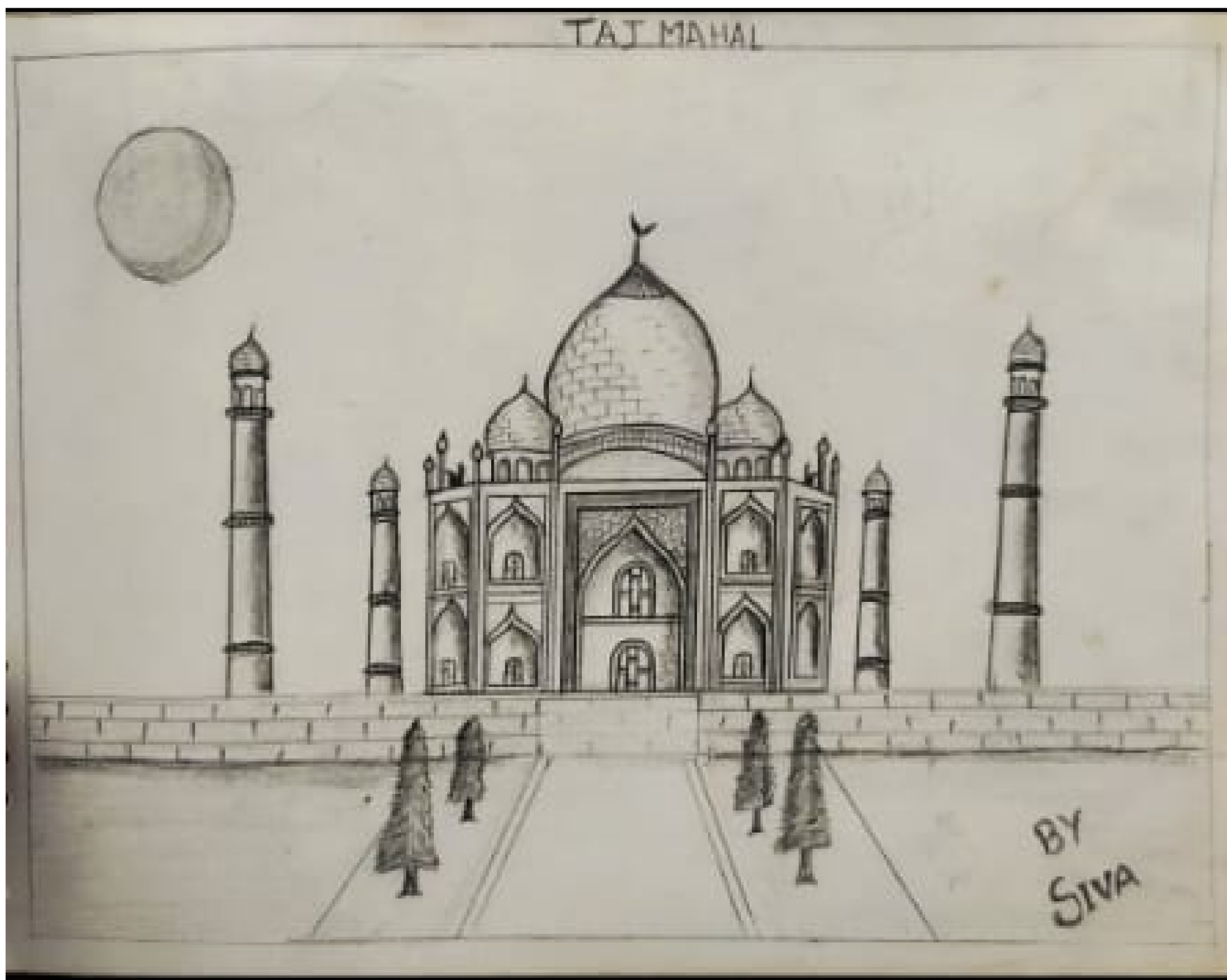
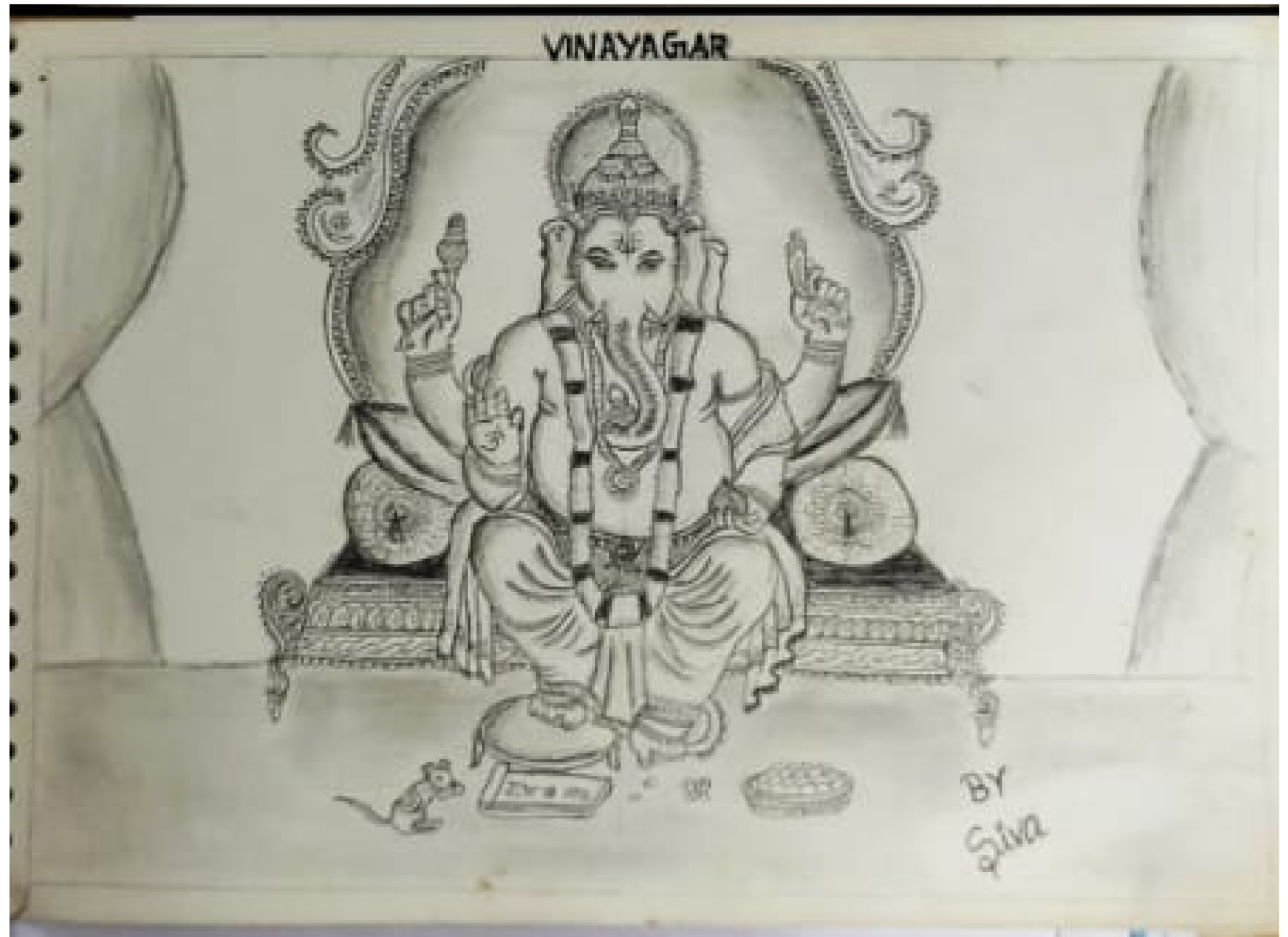


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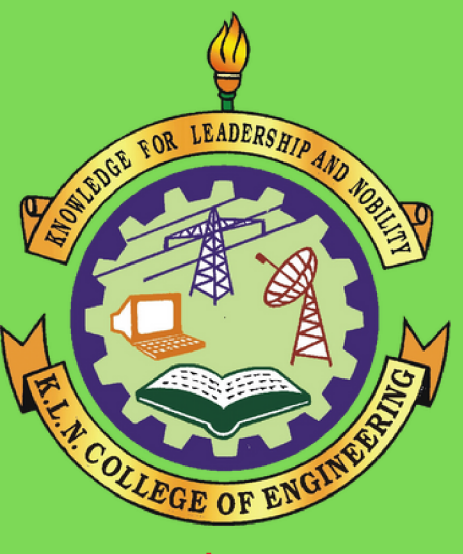
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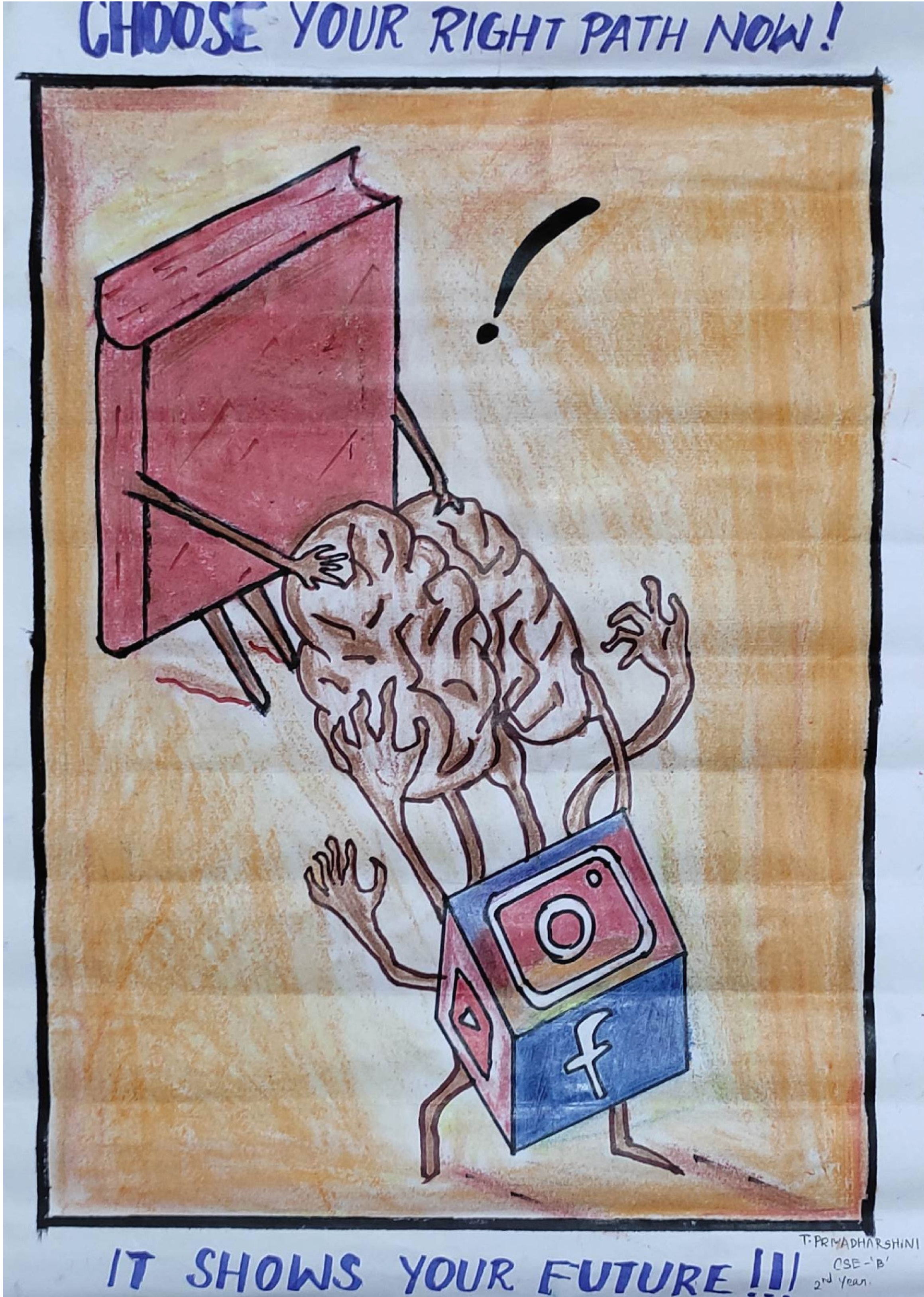


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