ASSIGNMENT - 1

SE-OVERVIEW OF IT INDUSTRY

1. What is software? What is software engineering?

→ set of instructions executed by any kind of tool.

- The software is basically a set of instructions or commands that tell a computer what to do.

- In other words, the software is a computer program that provides a set of instructions to execute a user's commands and tell the computer what to do.

- For example like MS-Word, MS-Excel, PowerPoint, etc.

-> Software Engineering is use of engineering principles for developing software.

- Software engineering deals with the design, development, testing, and maintenance of software applications.

-Software engineers apply engineering principles and knowledge of programming languages to build software solutions for end users.

- Some examples are Whatsapp, Twitch, Uber, Google Maps, Slack, Instagram, Facebook Messenger, etc.

2. Explain types of Software.

-> There are 5 main types of software :

- System software
- Application software
- Driver software
- Middleware
- Programming software

1) System Software : System software is a program designed to run a computer's hardware and applications and manage its resources, such as its memory, processors, and devices.

- It also provides a platform for running application software.

- System Software is already present in our system.

- e.g calculator, notepad, clock,calendar etc.

2) Application Software : Application software is a kind of software that performs specific functions for the end user by interacting directly with it.

- The sole purpose of application software is to aid the user in doing specified tasks.

- Application can be also called as an APP.

- We have to download the Application software.

- It is not present in the system.

- e.g whatsApp, Instagram, Twitter , Snapchat, Zoom etc.

3) Driver Software : Driver software enables your computer's hardware and operating system to communicate effectively.

- It is also known as Middleware.

- The main function of device driver software is to translate the commands from the operating system into specific instructions for the hardware device.

- It is a programming software which includes compiler and interpreter.

4) Middleware : It is a type of software that mediates between application and system software or between two different kinds of application software.

- For example, middleware enables Microsoft Windows to talk to Excel and Word.

- It is also used to send a remote work request from an application in a computer that has one kind of Operating System , to an application in a computer with a different Operating System.

- It also enables newer applications to work with legacy ones.

5) Programming software : Computer programmers use programming software to write code.

- Programming software and programming tools enable developers to develop, write, test and debug other software programs.

- Examples of programming software include assemblers, compilers, debuggers and interpreters.

- For ex : Turbo C.

3. What is SDLC? Explain each phase of SDLC.

-> SDLC is Software development Life cycle.

- SDLC is a step by step approach to develop any software with high quality , with low cost and in shortest time.

- The goal of SDLC is to minimize project risks by working step by step.

- There are phases of SDLC which helps in successful project making.

-> phases of SDLC are :

- Planning
- Analysis
- Designing
- Implementing
- Testing
- Maintenance

1) Planning : The planning phase includes tasks like :

- cost-benefit analysis
- scheduling
- resource estimation etc.

- The development team collects requirements from several stakeholders such as customers, internal and external experts, and managers to create a software requirement specification document.

- The document sets expectations and defines common goals that aid in project planning.

- The team estimates costs, creates a schedule, and has a detailed plan to achieve their goals.

- Basically, in this phase the whole plan about the software, its making is discussed.

- All these information are gathered in this phase.

2) Analysis : During this phase , the project team analyzes the requirements of the project.

- The team identifies what the end-users need and how the software can meet those needs.

- This stage is important because it helps to ensure that the software meets the needs of the end-users.

- for ex:

-What are the expectations of our users from our software?

3) Designing : The design phase of the Software Development Life Cycle (SDLC) is a critical step in developing the conceptual blueprint of a software project.

- This phase involves transforming the software requirements gathered during the Requirements Analysis phase into a structured design document.

- for ex, we use DFD, Flow chart, ER, Use case diagrams in this phase.

4) Implementation : this is the fourth phase of SDLC.

- In this phase we write the code and implement it.

- The main development part comes under this phase.

- This phase includes the development of the software (Coding) and built it and then implement the same code into action.

-After that , it is send to the testing team to find out the errors.

5) Testing : In this fifth phase of SDLC, the testing is done to ensure that the entire application works according to the customer requirements or not.

- After testing, the QA and testing team might find some bugs or defects and communicate the same with the developers.

- Then the developers solves the problem and make it easy for users to use.

- Testing team (QA) checks the whole development and finds all the errors .

- Their main work is to find errors.

6) Maintenance : The purpose of the maintenance phase is to provide three key outcomes:

- maintain software functionality
- make upgrades to the coding

- ensure any repairs needed to the software are completed.

- These are the main tasks of this phase.

- Maintenance is the crucial part of the SDLC.

- New updates must come after some time.

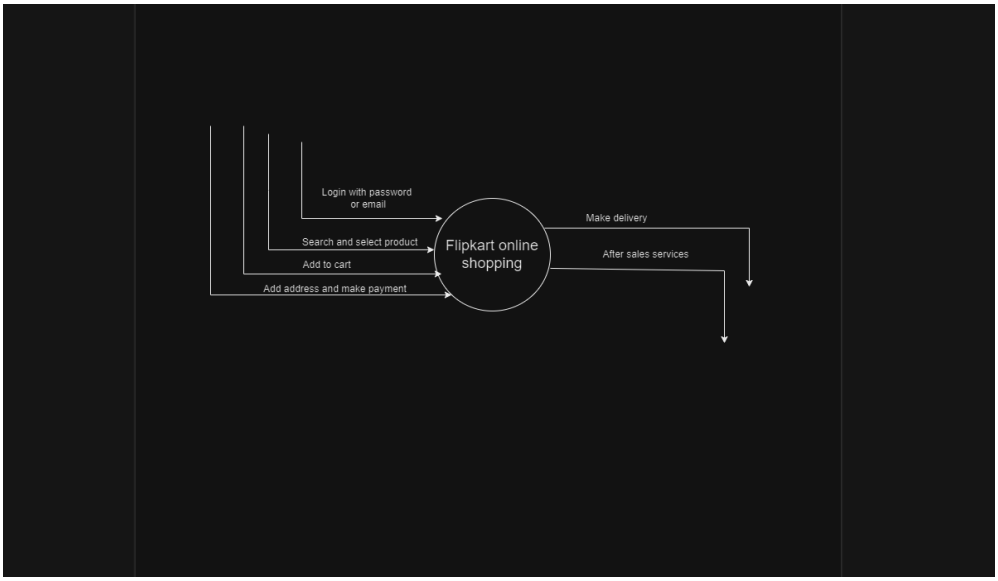
4. What is DFD? Create a DFD diagram on Flipkart.

-> DFD is data flow diagram.

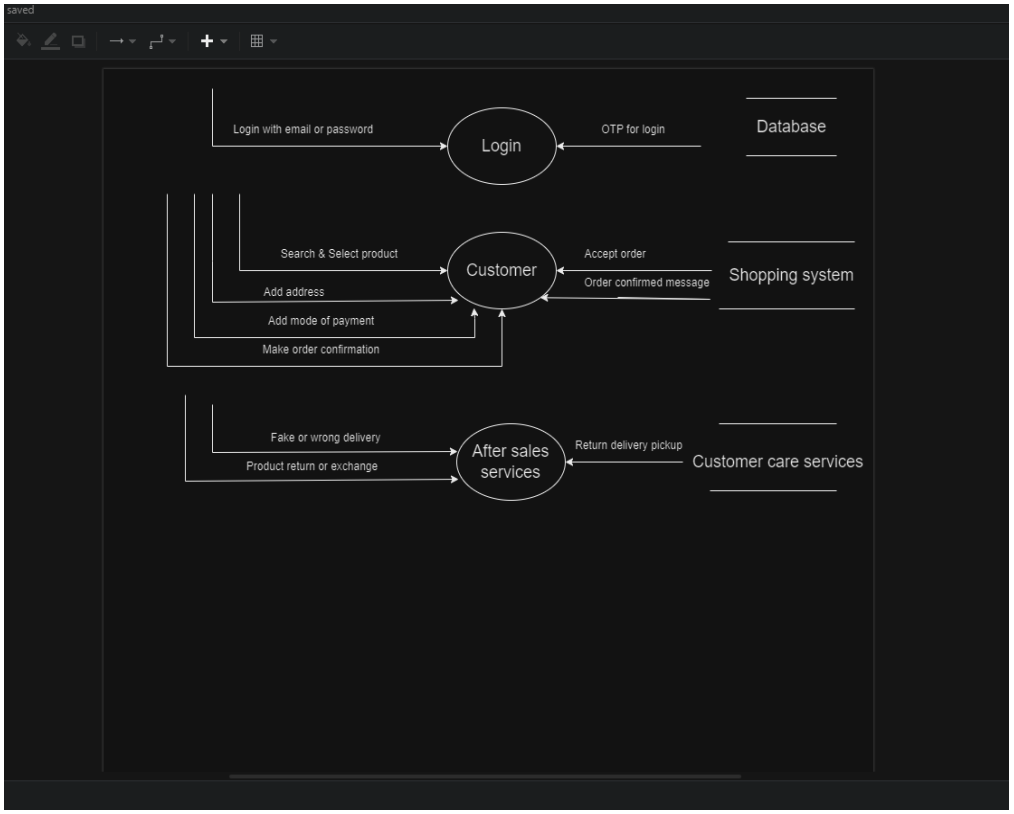
- The flow of data of a system or a process is represented by DFD.

- It is a graphical tool that is used to communicate with users etc.

- A data flow diagram (DFD) is a graphical or visual representation that uses a standardized set of symbols and notations to describe a business's operations through data movement.



0 – level dfd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Search & Select product
Customer
Accept order
Order confirmed message
Shopping system
Add address
Add mode of payment
Make order confirmation
Fake or wrong delivery
Product return or exchange
After sales services
Return delivery pickup
Customer care services

1 – level dfd

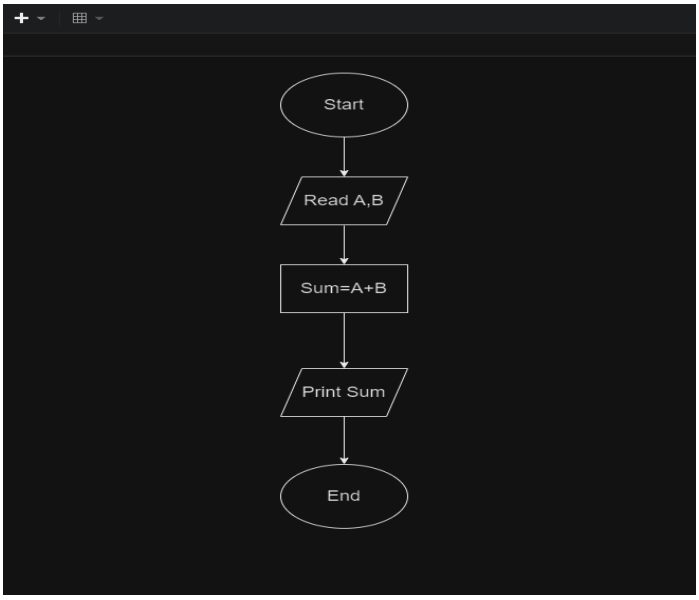
5. What is Flow chart? Create a flowchart to make addition of two numbers.

-> A flowchart is a type of diagram that represent a process.

- It is a diagrammatic representation of process.

- Flowcharts are basically used to visualize the sequence of actions.

- They use symbols, shapes, and arrows to illustrate how one step leads to another.

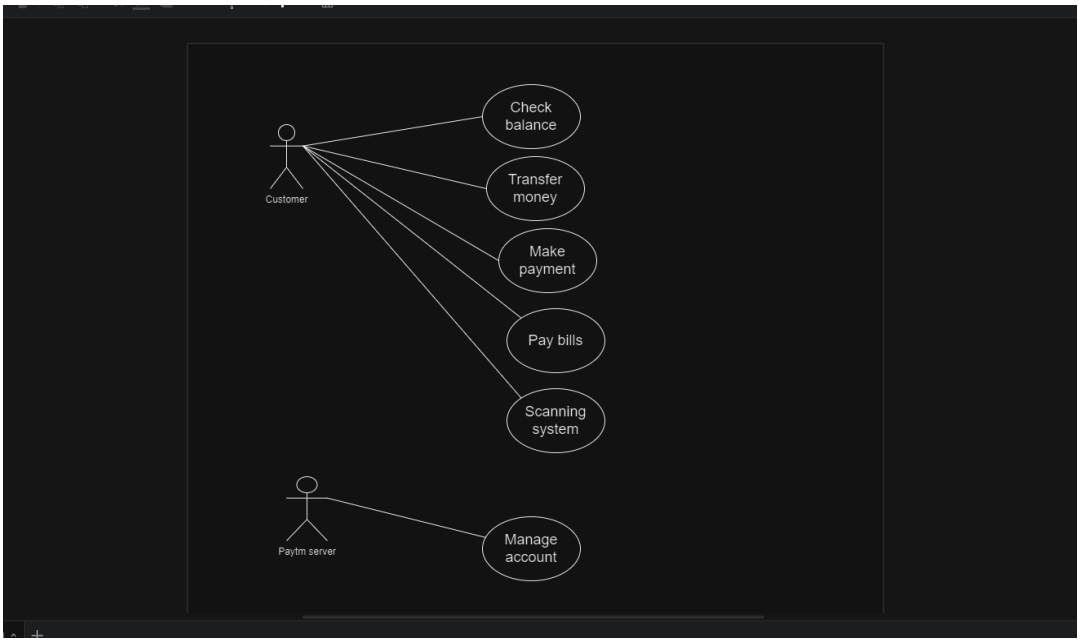


Flowchart

6. What is Use case Diagram? Create a use-case on bill payment on Paytm.

-> A Use Case Diagram is a vital tool in system design, it provides a visual representation of how users interact with a system.

- It serves as a blueprint for understanding the functional requirements of a system from a user's perspective, aiding in the communication between stakeholders and guiding the development process.



Use – Case diagram