TOPS TECHNOLOGIES

(Full Stack Development)

Software Engineering Assignment

Assignment title – MODULE1 (SDLC)

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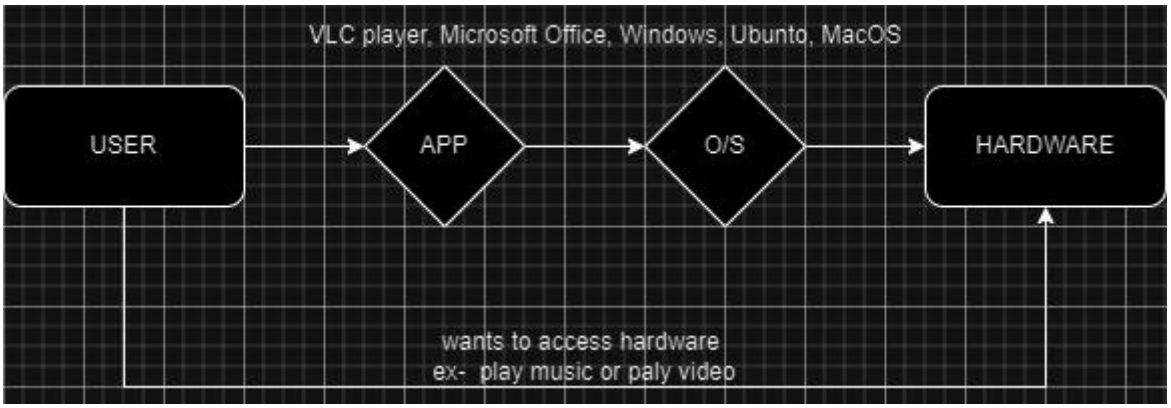
Que.1 What is Software? What is Software Engineering?

Ans -

A Software is an Intangible asset. The software comprises a set of instructions which on execution deliver desired results.

Some examples of Software include OS (operating system) like Windows or Ubuntu, word processing tool like Microsoft Word , video player like VLC player.



Software Engineering is a technique through which we can develop or create software for computer systems.

Software Engineering is a process in which user needs are analysed and software is developed based on their needs.

The development of software is done using well defined scientific principles, method and procedures.

Que.2 Explain Types of Software.

Ans -

The Software are broadly classified under the 5 categories-

1. Application Software
2. System Software
3. Driver Software
4. Middle Ware
5. Programming Software

1. Application Software-
   Application Software is a software that performs specific functions for a user. It is the most common type of 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/help the user in doing specified tasks.
   Ex – MS office, PowerPoint, Word, Outlook, etc.

2. System Software –
   System Software is a software designed to provide a platform for other software.

   These Software programs are designed to run a computer's application programs & hardware.

   System software manages and provide basic service to higher-level software.
   Ex – Notepad, Calculator, etc.

3. Driver Software-
   Driver software is also known as computer programs that allows a computer's operating system to communicate with a particular type of hardware devices.

   All hardware devices, including internal components like graphics cards and external peripherals like printers, need drivers to function properly.

   Ex- NVIDIA drivers, Intel Drivers, AMD Drivers to support AMD processors and graphics.

4. Middle Ware-
   Middleware software is software that acts as a bridge between applications, tools and database.

   Middle ware acts as a hidden translation layer that allows applications to communicate with each other.

   Ex- Database, Windows, Android and IOS.

5. Programming Software-
   Programming software is a program or set of programs which helps the software developers by assisting them crating, maintaining other programs.

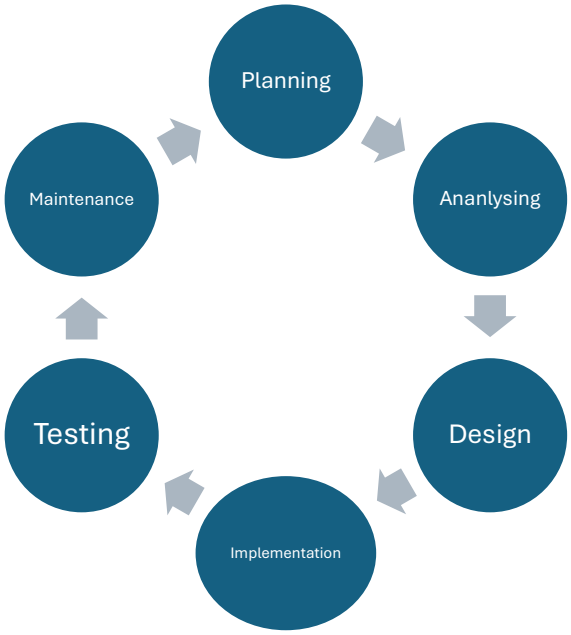
   Programming software is the composition of sequence of instructions, called Programs.

   Ex- VScode.

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

Ans -

Software development life cycle (SDLC) is a structured process that is used to design, develop, and test good-quality software. SDLC or software development life cycle, is a methodology that defines the entire procedure of software development step-by-step.



Phases of SDLC-

1. Planning-
   Planning is a crucial part of SDLC. This attained from customer inputs, and sales department/ marketing surveys.
   The information from this analysis forms the building blocks of a basic project. The quality of the project is the result of planning.

2. Analysing-
   In this stage, all the requirements for the target software are specified. These requirements get approval from customers. Market analysts, and stakeholders.

3. Design –
   This stage is all about bringing down all your knowledge of requirements, analysis and designs of the software projects. This phase is the product of last two, like inputs from the customers and requirements gathering.

4. Implementation –
   In this phase of SDLC, the actual development begins, and the program is built. The implementation of design begins concerning writing codes. Developers must see follow the coding guidelines described by their management and programming tools like complier, interpreters, debuggers , etc are used to develop and implement code.

5. Testing –
   After the code is generated, it is tested against the requirements to make sure that the products are solving the needs and requirements of client.
   After the testing of the product is completed and it's approved by the client, then it is deployed to the servers for their use.

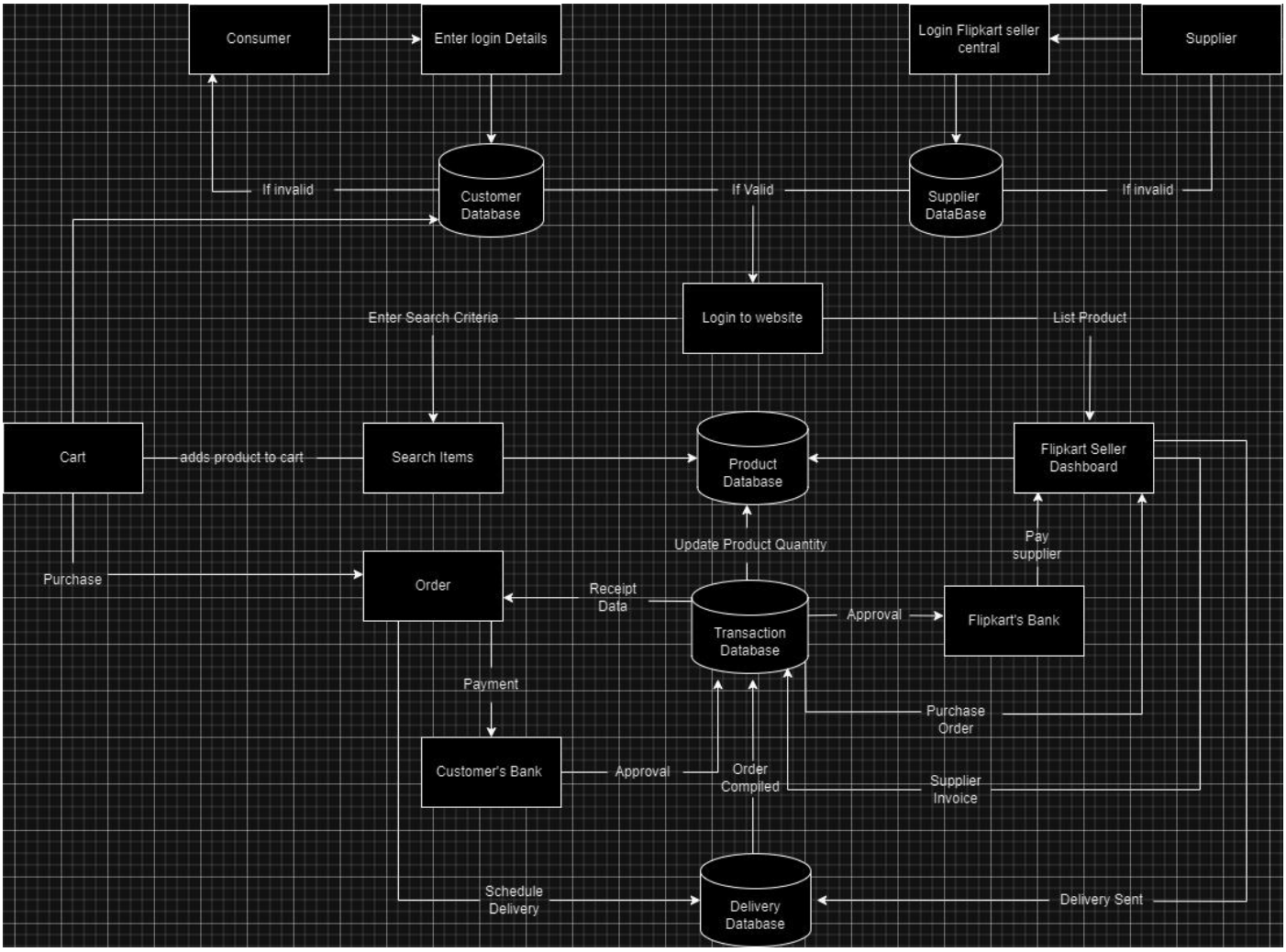
6. Maintenance –
   Once when the client starts using the developed systems, then the real issues come up and requirements to be solved time to time.
   This procedure where the care is taken for the developed product is known as maintenance.

Que.4 What is DFD diagram?

Ans –

A DFD diagram or data flow diagram is a graphical representation that shows the flow of data within a system it helps in visualizing how data is processed, where it comes from, and where it goes within a system.

DFD diagram on Flipkart is as follows –



Que. What is Flow Chart? Create a flow chart to make addition of two numbers.

Ans -

A flow chart is a diagram that visually represents a process, showing the steps in sequence. It uses various shapes to denote the different types of flow of actions .

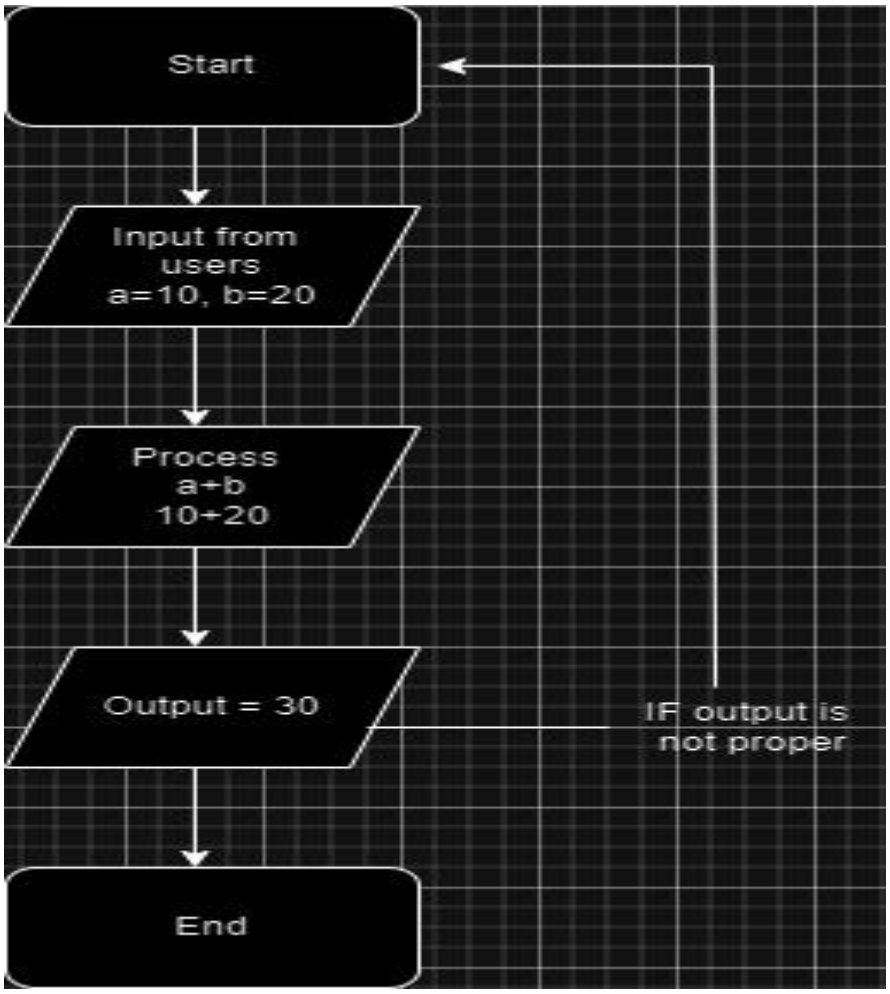
Ovals shows the start and end points.

Rectangles represents process, steps or actions.

Diamond shows decision points that lead to different paths.

Arrows shoes the flow of the process.

Below is the flow chart to make additions of two numbers –



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

Ans –

A use case diagram is visual representation of interaction between user and a system. It explains the functional requirements of the system by showing various use case and how they relate to the users.

Key Components of a Use-case diagram is-

Actors – Entities (user or admin) that interact with the system.

Use cases – Specific functions or process that the system performs in response to an actor's input.

Relationships – lines connecting actors to their use cases, indicating interactions.

Below is the Use-case diagram of bill payment on Paytm -