MODULE -1

Q1.] What is software? What is software engineering?
Answer : The software comprises a set of instruction which on execution deliver the desired outcome. Software is that part of a computer, Which cannot be touched. Software tell a computer what to do and how to do.

→ Some examples of software include operating system like ubuntu or windows 7/8/10, Word processing tool like Microsoft word, Video player like VLC player etc.

Software engineering is a technique through which we can developed or created software for computer systems and any other electronic devices.

In other words, Software engineering is a process in which user needs are analysis and software is designed based on there needs.

In software engineering the development of software using well define scientific principle, Method and procedures.

Software engineers build these software and applications by using designing and programming languages.

Q2.] Explain types of software.

Answer : The three main categories of software System Software, Application Software, Programming Software:

● Types of software :

→ System Software
→ Programming software
→ Application Software

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

   Ex : Operating system, system utilities, device drivers

2. Programming software
   Programming software is a set of tools that developers use to create computer program, scripts, and software applications.

   Ex : language translators, programming languages, program development tools, compiler, visual studio code, subline text

3. Application software
   The most common type of software, application software is a computer software package that performs a specific function for a user, or in some cases, for another application.

   Ex :
   i) Microsoft products : word, excel, and ms office
   ii) Internet browsers : chrome, safari, and firefox

iii) Multimedia and music streaming software : spotify, pandora, mx player, and vlc media player

Q3.] What is SDLC? Explain each phase of SDLC.

Answer : SDLC stand for software development life cycle, Which is a structured process that help developers create high – quality software products. It provides a framework for developing applications, and allows developers to analyze requirements and plan before starting development. The SDLC also helps developers manage their time and resources more efficiently.

There are following six phases in every software development life cycle model :

1) Requirement gathering and analysis :
Business requirements are gathered in this phase. This phase is the main focus of the project managers and stake holders. Meetings with managers, stake holders and users are held in order to determine the requirements like; Who is going to use the system? How will they use the system? What data should be input into the system? What data should be output by the system? These are general questions that get answered during a requirements gathering phase. After requirement gathering these requirements are analyzed for their validity and the possibility of incorporating the requirements in the system to be development is also studied.

Finally, a Requirement Specification document is created which serves the purpose of guideline for the next phase of the model. The testing team follows the Software Testing Life Cycle and starts the Test Planning phase after the requirements analysis is completed.

2) Design :
In this phase the system and software design is prepared from the requirement specifications which were studied in the first phase. System Design helps in specifying hardware and system requirements and also helps in defining overall system

architecture. The system design specifications serve as input for the next phase of the model.

In this phase the testers comes up with the Test strategy, where they mention what to test, how to test.

3) Implementation / Coding :
On receiving system design documents, the work is divided in modules/units and actual coding is started. Since, in this phase the code is produced so it is the main focus for the developer. This is the longest phase of the software development life cycle.

4) Testing :
After the code is developed it is tested against the requirements to make sure that the product is actually solving the needs addressed and gathered during the requirements phase. During this phase all types of functional testing like unit testing, integration testing, system testing, acceptance testing are done as well as non-functional testing are also done.

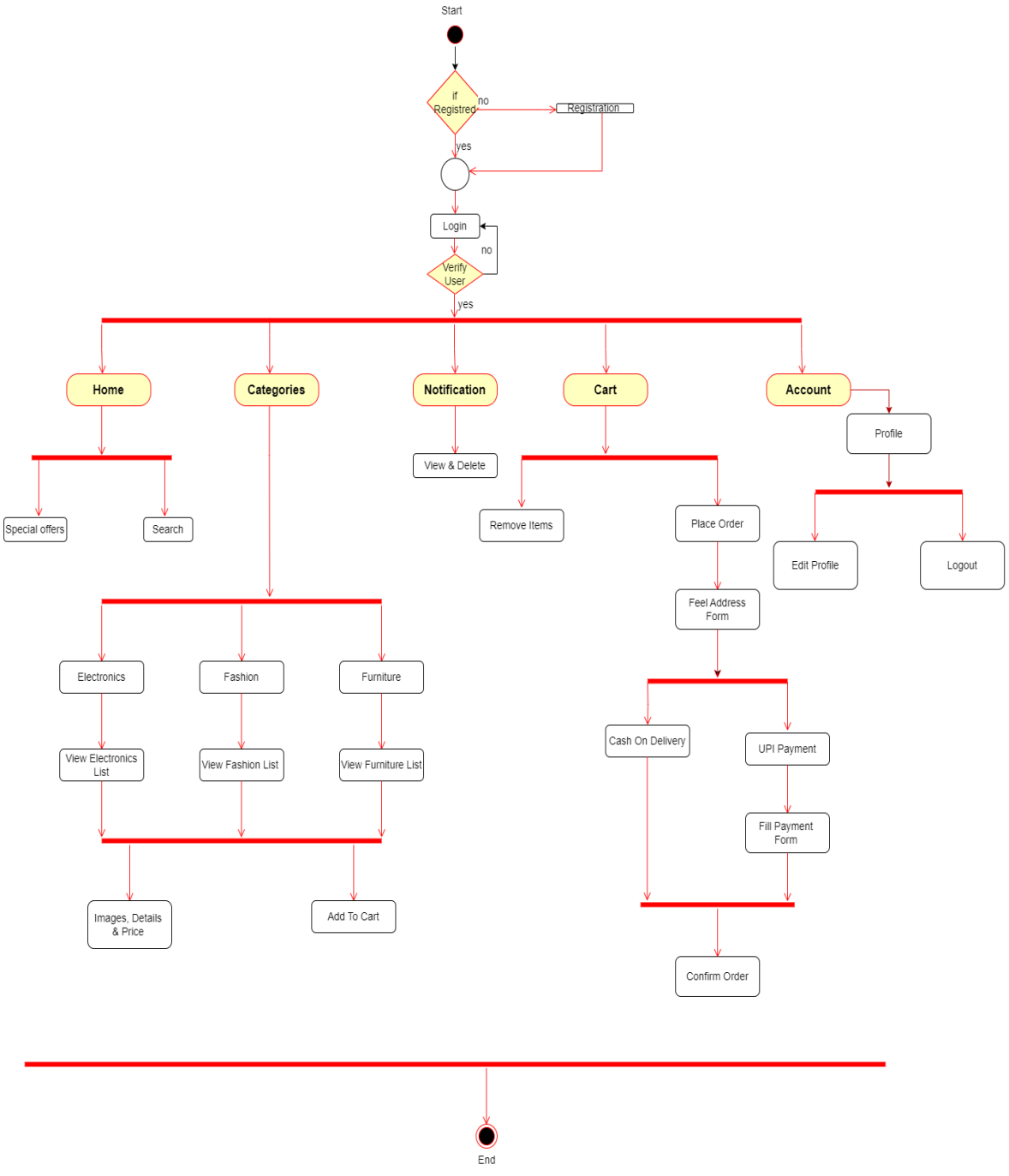
5) Deployment :
After successful testing the product is delivered / deployed to the customer for their use.

As soon as the product is given to the customers they will first do the beta testing. If any changes are required or if any bugs are caught, then they will report it to the engineering team. Once those changes are made or the bugs are fixed then the final deployment will happen.

6) Maintenance :
Once when the customers starts using the developed system then the actual problems comes up and needs to be solved from time to time. This process where the care is taken for the developed product is known as maintenance.

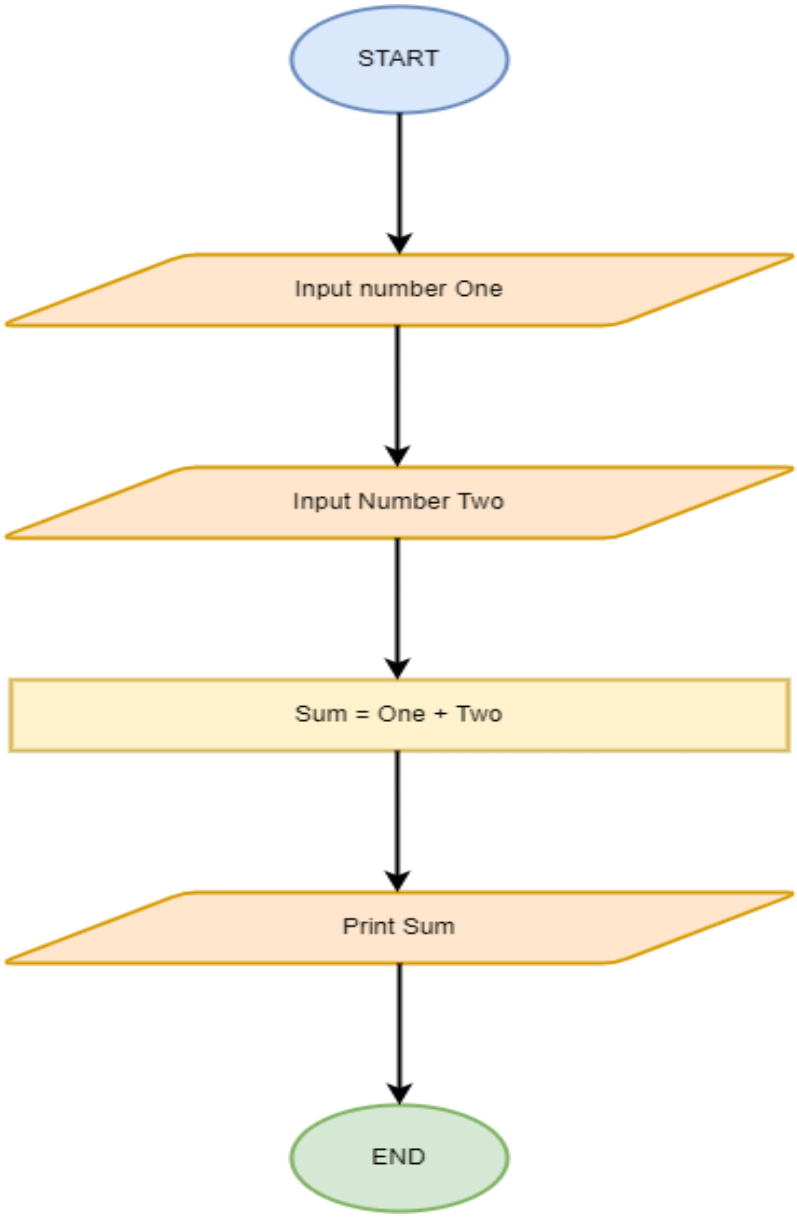
Q4.] What is DFD? Create a DFD diagram on flipkart

Answer : DFD stand for data flow diagram. It's a visual representation of how data flows through a system, showing the processes, data stores, and data flows between them. DFDs are commonly used in software engineering and systems analysis to understand and communicate the flow of data within a system or between systems. They help in identifying inputs, outputs, processes, and data storage points in a structured manner.



Q5.] What is Flow chart? Create a flowchart to make addition of two numbers

Answer : A flowchart is a graphical representation of a process, showing the steps or actions to be taken in a sequential order. It uses standardized symbols and shapes to depict the flow of data or activities within a system. Flowcharts are commonly used in various fields such as software development, engineering, business processes, and project management to visually represent complex processes, making them easier to understand and analyze. They are particularly useful for documenting processes, identifying bottlenecks, and improving efficiency.



Q6.] What is Use case daigram? Create a Use – case on bill payment on paytm

Answer : A use case diagram is a graphical representation of the interactions between a system (software, hardware, or a combination of both) and its users. It's one of the Unified Modeling Language diagrams used in software engineering to depict the functionalities or behaviors of a system in terms of actors, which can be users, systems, or external entities.

In a use case diagram :

1. Actors : These are entities that interact with the system. Actors can be human users, other systems, or even hardware devices. Each actor represents a role played by a user or external system.

2. Use Cases : These are the specific tasks or goals that users can perform using the system. Each use case represents a discrete unit of functionality provided by the system.

3. Relationships : Relationships between actors and use cases are shown through lines connecting them. These relationships represent the interactions between actors and the system, typically depicted as arrows pointing from the actor to the use case.

Use case diagrams help in understanding the functional requirements of a system by illustrating how users interact with it and what functionalities are available to them. They are useful during the early stages of system design and are often used as a communication tool between developers and stakeholders to ensure a common understanding of the system's behavior.

--> Use – case on bill payment on paytm **:**