Module 1

Overview of IT Industry

Q : 1 What is Software ? What is Software Engineering ?

A : 1 Software : Software is refers to a set of Instruction, data or programs that enable a computer to perform specific tasks or functions. In simpler word, it tells computer how to work. Without Software, most computer would be useless. For an example, a web browser is a software application that allows users to access the internet. Another example of Software is word processors, games and productivity tools.

Software Engineering : Software Engineering is the process of designing, developing, testing and maintaining software with engineering principles. The main goal of Software Engineering is to develop software applications for improving quality, budget and time efficiency. It is mainly used for large projects based on software systems rather than single programs or applications.

Q : 2 Explain types of Software.

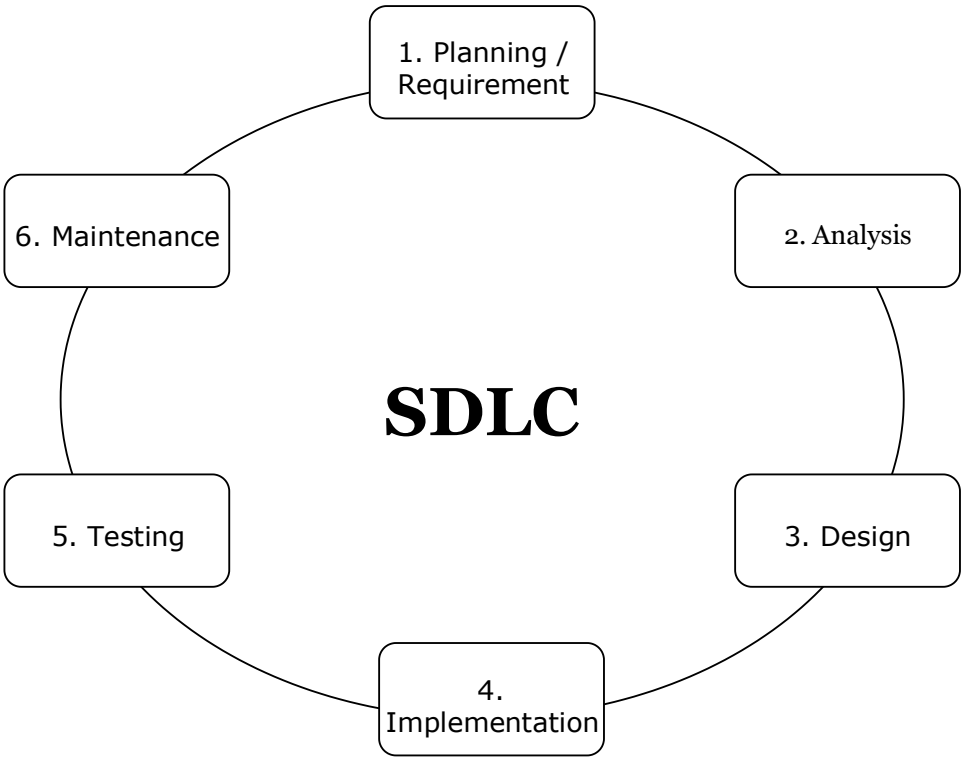
A : 2 There are main two types of Software 1. System software 2. Application software.

1. **System software** : System software is software designed to provide a platform for other software by the system only. Example of System software includes Notes, To Do list, Clock, Calendar, Operating systems (OS) like Android, Microsoft windows, Windows, Linux and so on. System software is usually supplied by the manufacturer of the computer hardware and intended to be used by most or all users of the system.

2. **Application Software** : Application software is designed to perform a specific task for end-user. It is a product or a program that is frame only to fulfill end-users' requirement. In other word System software which is running application software , application software serves the need of the user directly. Example Includes Facebook, Instagram, WhatApp, Telegram, wide range of programs like word processors, wen browsers, spreadsheets, graphic design software, video games and so on.

Q : 3 What is SDLC ? Explained each phase of SDLC.

A : 3 SDLC – SDLC stands for Software Development Life System. It is a step-by-step approach process that produce software with the highest quality and lowest cost in the shortest time possible. SDLC is a systematic framework of phases that enable organization to efficiently high quality software which is well tested and ready for production use.



Phases of SDLC :

1. **Planning / Requirement** : This phase involves gathering information about the software requirements from stakeholder, such as customers, end-users' etc.
2. **Analysis** : Requirements are documented and analyzed to ensure they are apparent, complete and feasible or viable. Requirement analysis is also perform by the developer of the organization.
3. **Design :** "How will we get what we want?" The design phase defines how a software application will work. During this phase, team decide on the programming language, screen layouts and relevant documentation they will use
4. l**mplementation** : In the Implementation phase, the development team codes the product and ensure the ongoing functionality, performance and security of the software. Tis is the longest phase of SDLC. This phase consists of Back-end and Front-end bothr.
5. **Testing** : The software testing involves a thoroughly examination of the software for any bugs and glitches that might have skipped through during coding. The aim is to ensure and assure flawless operation before it reaches to End-users'
6. **Maintenance :** The maintenance phase is the final stage of the SDLC. This phase is characterized by constant assistant and improvement. In other word, the SDLC doesn't end when software reaches the market, developers are responsible for implementing any changes that the software might need after development.

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

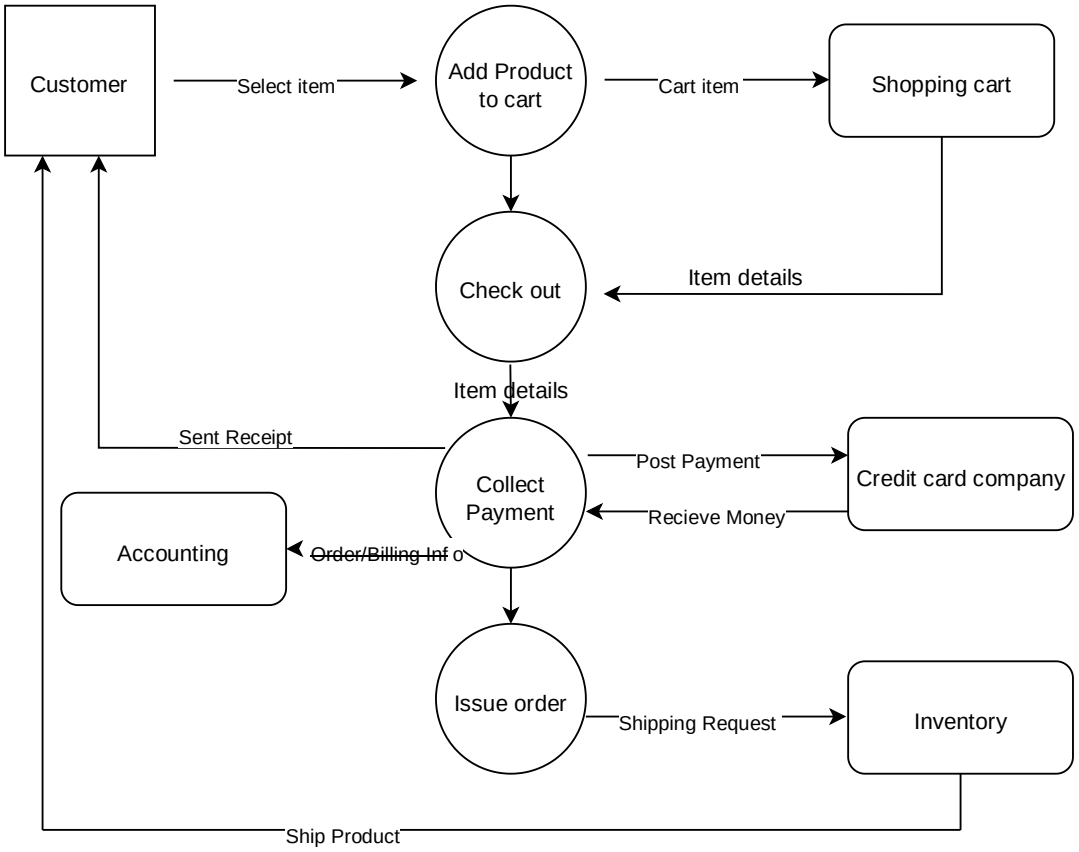
A : 4 DFD stands for Data Flow Chart. It is a graphical representation that shows how data flow of a system that can be understood by both technical or non-technical users.

Components of DFD : Process
Data Flow
Data Store
External Entities

Levels of DFD : Level 0 DFD
Level 1 DFD
Level 2 DFD
Level 3 DFD

Types of DFD : Logical DFD
Physical DFD

0 Level Data Flow Chart on Flipkart



Q : 5 What is Flowchart ? Create a flow chart to make addition of two numbers.

A : 5 : Flow chart is a diagram that shows steo-by-step progression hrough a procedure or system especially using connecting lines are a set of conventional symbols. It is graphical requirement of a process or algorithm.

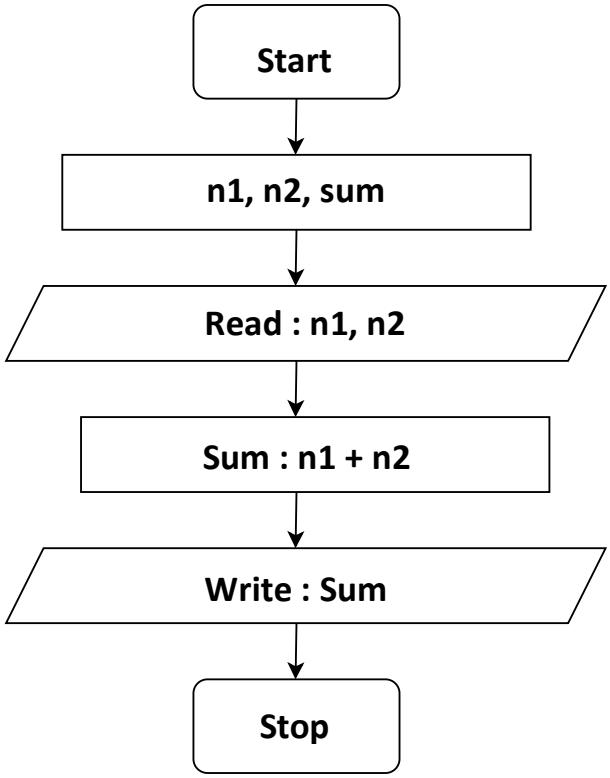
Symbols or Components : **Oval** (Terminal symbol)
Rectangle (Process symbol)
Arrow (Arrow symbol)
Diamond (Decision symbol)
Parallelogram (Input / Output symbol)

Symbols	Name	Functions
	Oval	Represents the start and end of a process
	Rectangle	Denotes a process or operation step
	Arrow	Indicates the flow between steps
	Diamond	Signifies a point requiring a yes/no
	Parallelogram	Used for Input or Output operations

Types of Flow chart : Process Flow chart
Data Flow chart
Work Flow chart
Swimlane Flow chart

Flow charts are variable tools used in various industries to improve process efficiency, standardize, procedure and ensure consistence in operation.

Flow Chart : Addition of Two Number



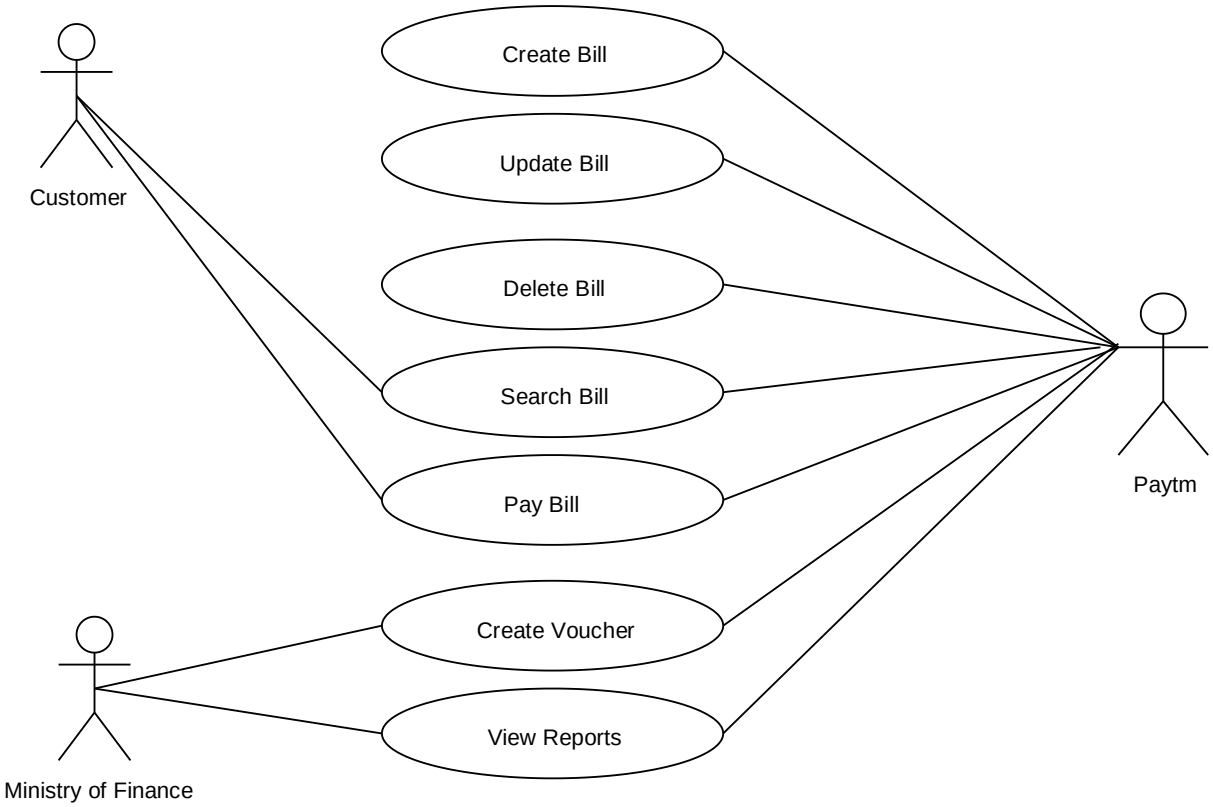
Q : 6 What is Use case Diagram ? Create a Use case on bill payment on paytm.

A : 6 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 : Actors
Use Cases
System Boundary

Use Case Diagram Relationship : Association Relationship
Include Relationship

Use Case on Bill Payment Diagram


Customer
Create Bill
Update Bill
Delete Bill
Search Bill
Pay Bill
Paytm
Create Voucher
View Reports
Ministry of Finance