Software EngineeringAssignment

SE – Overview of IT Industry
MODULE: 1

Q1. What is software? What is software engineering?

Ans.

Software
Software is a set of programs that allows the users to perform a well-defined function or some specified task.

Software Engineering
Software engineers are computer science professionals who use engineering principles and programming languages to build software products, develop web and mobile applications, and run network control systems.

Q2. Explain types of software

Ans.

The Two main categories of software are **Application software** and **System Software.**

Among the various categories of software
1. Application Software
2. System Software
3. Driver Software
4. Middleware Software
5. Programming Software

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.

An application can be self-contained, or it can be a group of programs that run the application for the user.

System Software

These software programs are designed to run a computer's application programs and hardware. System software coordinates the activities and functions of the hardware and software.

Driver Software

This software is often considered a type of system software. Device drivers control the devices and peripherals connected to a computer, enabling them to perform their specific tasks.

Every device that is connected to a computer needs at least one device driver to function.

MiddleWare

The term middleware describes software that mediates between application and system software or between two different kinds of application software.

Ex. middleware enables microsoft windows to talk to Excel and Word.

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.

Q3. What is SDLC? Explain each phase of SDLC

Ans.

SDLC stands for **Software development lifecycle**.

The software development life cycle is the cost effective and time efficient process that development teams use to design and build high quality software.

The development team must determine a suitable life cycle model for a particular plan and then observe it.

When a team is developing a software product, there must be a clear understanding among team representative about when and what to do. Otherwise, it would point to chaos and project failure.

Phase of SDLC
1. **Requirement gathering and analysis**
2. **Design**
3. **Implementation or coding**
4. **Testing**
5. **Software deployment**
6. **Maintenance**

Requirement gathering and analysis
During this phase, all the relevant information is collected from the customer to develop a product as per their expectation. Any ambiguities must be resolved in this phase only.

Design
In this phase, the requirement gathered in the SRS document is used as an input and software architecture that is used for implementing system development is derived.

Implementation or Coding

Implementation or coding starts once the developer gets the design document. The software design is translated into source code. All the components of the software are implemented in this phase.

Software Testing

Testing starts once the coding is complete and the modules are released for testing.
In this phase, the developed software is tested thoroughly and any defects found are assigned to developers to get them fixed.

Deployment

Once the product is tested, it is deployed in the production environment or first UAT(User Acceptance testing)is done depending on the customer expectation.

Maintenance

After the deployment of a product in the production environment, maintenance of the product i.e. if any issue comes up and needs to be fixed or any enhancement is to be done is taken care by the developers.

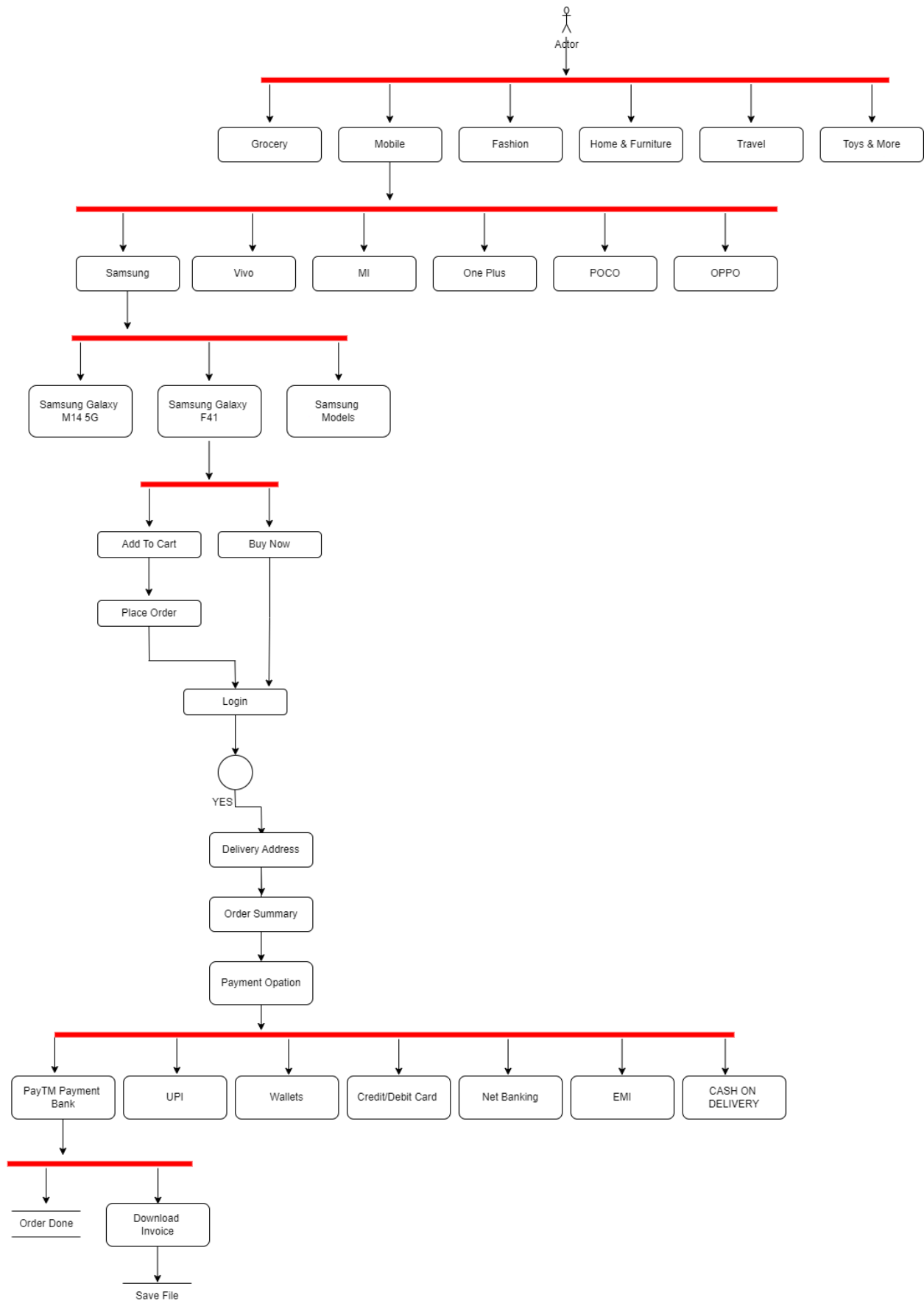## Q4. What is DFD? DFD diagram on Flipkart

Ans.

DFD stands for **Data Flow Diagram**

A data flow diagram maps out the flow of information for any process or system. It uses defined symbols like rectangles, circled and arrows, plus short text labels, to show data inputs, outputs, storage points and the routers between each destination.

What is DFD? DFD diagram on Flipkart
🗀 **Diagrams**

Actor

Grocery | Mobile | Fashion | Home & Furniture | Travel | Toys & More

Samsung | Vivo | MI | One Plus | POCO | OPPO

Samsung Galaxy M14 5G | Samsung Galaxy F41 | Samsung Models

Add To Cart | Buy Now

Place Order

Login

YES

Delivery Address

Order Summary

Payment Opation

PayTM Payment Bank | UPI | Wallets | Credit/Debit Card | Net Banking | EMI | CASH ON DELIVERY

Order Done | Download Invoice

Save File

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

Ans.

A flow chart is a graphical or symbolic representation of a process. Each step in the process is represented by a different symbol and contains a short description of the process step.

The flowchart symbols are linked together with arrows showing the process flow direction.

Flowchart to add two numbers

Start

Input Number 1, Number2

Sum = Number1 + Number2

Print Sum

End
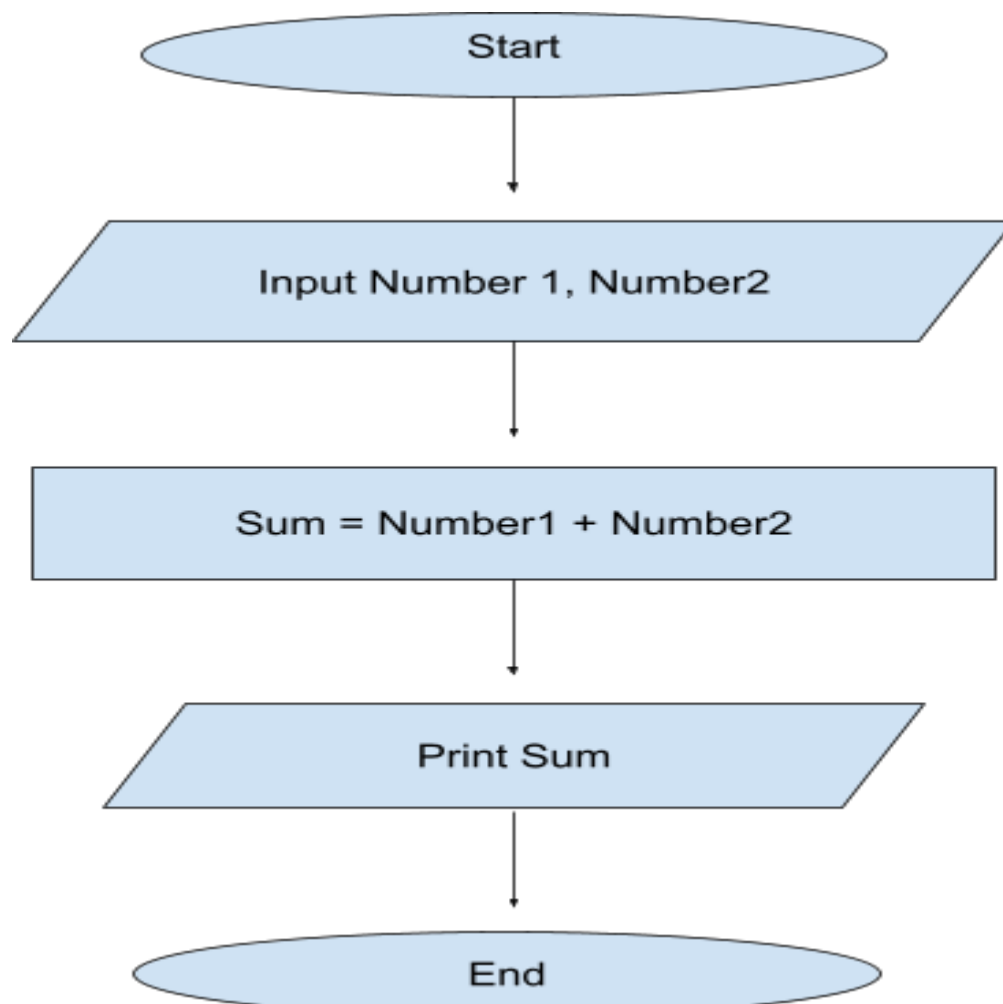
Q6. What is Use Case Diagram?

Ans.

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.

UseCase

A use case is a specific sequence of interactions between an external actor and a system that results in a measurable outcome.

These interactions are depicted in the Use Case Diagram, outlining the essential functionalities and behaviors of the system as experienced by the user.

Create a use-case on bill payment on paytm
📄 **paytmUseCaseDIagram.drawio.png**

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                                                                                              Paytm Wallet

                                                              Prepaid        Enter Detail       UPI Option        Enter Upi Pin
                                             Mobile Recharges
                                                              Postpaid                          Net Banking

              Investor Relations                          Electricity Bills

   Consumer            Payments        Bill & Recharges    Gas Bills

Actor                  Other Service   Financial Services

   Business                            OTT Subscriptions   Property Tex

   Sign in                             Other Services
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