Assignment

Module: 1

Overview of IT Industry

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1. **What is software? What is software engineering?**

⇨ Software is a set of instructions, data or programs used to operate computers and execute specific tasks. It is the opposite of hardware, which describes the physical aspects of a computer. Software is a generic term used to refer to applications, scripts and programs that run on a device. It can be thought of as the variable part of a computer, while hardware is the invariable part.

⇨ Software engineering is defined as a process of analysing user requirements and then designing, building, and testing software application which will satisfy those requirements.

2. **Explain types of software**

⇨ 1. 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.

2. System Software

- These software programs are designed to run a computer's application programs and hardware.
- The OS is the best example of system software; it manages all the other computer programs.

3. Driver Software

- Also known as device drivers, 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.

4. Middleware

- The term middleware describes 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 OS, to an application in a computer with a different OS. 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.

3. What is SDLC? Explain each phase of SDLC

⇨ The Software Development Life Cycle (SDLC) refers to a methodology with clearly defined processes for creating high-quality software.

⇨ SDLC is a structured process that enables the production of high-quality, low-cost software, in the shortest possible production time.

Phase of SDLC

1. Requirement Gathering
   - 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.
   - Business analyst and Project Manager set up a meeting with the customer to gather all the information like what the customer wants to build, who will be the end-user, what is the purpose of the product. Before building a product a core understanding or knowledge of the product is very important.

2. Analysis
   - Once the requirement gathering is done, an analysis is done to check the feasibility of the development of a product. In case of any ambiguity, a call is set up for further discussion.

3. Designing
   - 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.

4. Implementation
   - Implementation/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.

5. 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.

- Retesting, regression testing is done until the point at which the software is as per the customer's expectation. Testers refer SRS document to make sure that the software is as per the customer's standard.

6. Maintenance

- After the deployment of a product on 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.

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

⇨ DFD is the abbreviation for Data Flow Diagram. The flow of data of a system or a process is represented by DFD. It also gives insight into the inputs and outputs of each entity and the process itself.

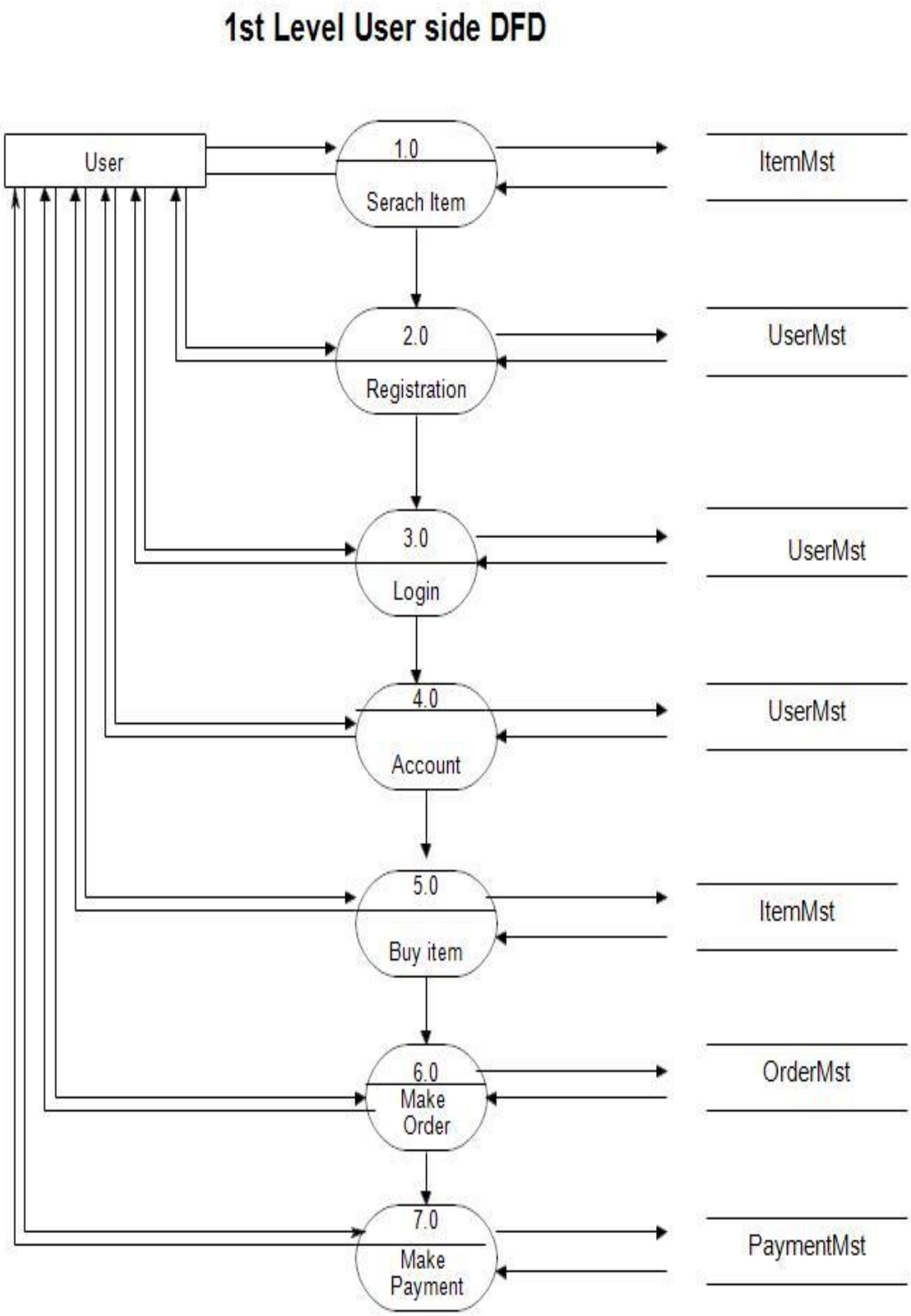
⇨ DFD does not have control flow and no loops or decision rules are present. Specific operations depending on the type of data can be explained by a flowchart. Data Flow Diagram can be represented in several ways.

⇨ The DFD belongs to structured-analysis modelling tools. Data Flow diagrams are very popular because they help us to visualize the major steps and data involved in software-system processes.

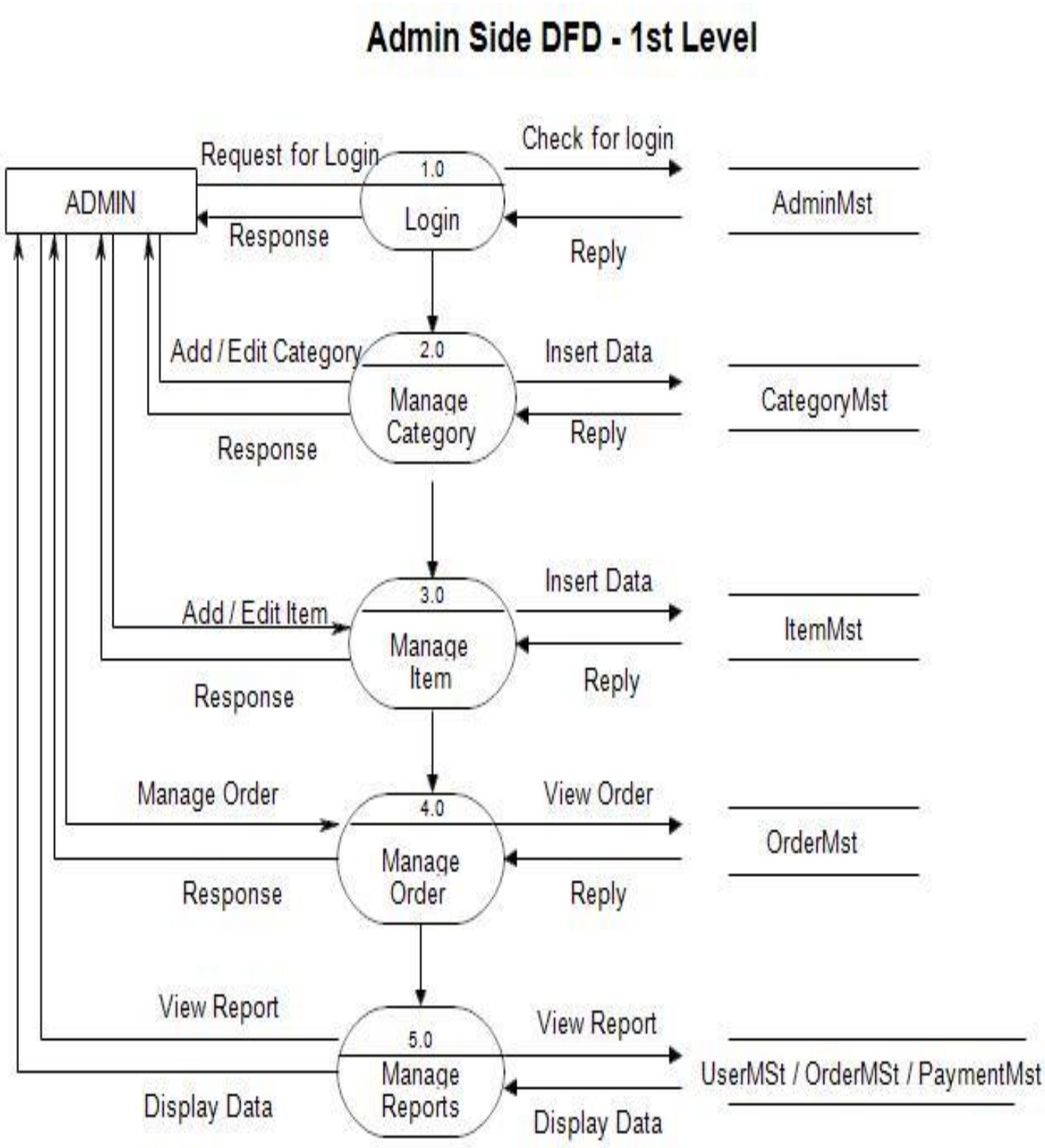
DFD diagram on Flipkart:

Level-0

Level-1


1st Level User side DFD
User
1.0
Serach Item
ItemMst
2.0
Registration
UserMst
3.0
Login
UserMst
4.0
Account
UserMst
5.0
Buy item
ItemMst
6.0
Make Order
OrderMst
7.0
Make Payment
PaymentMst

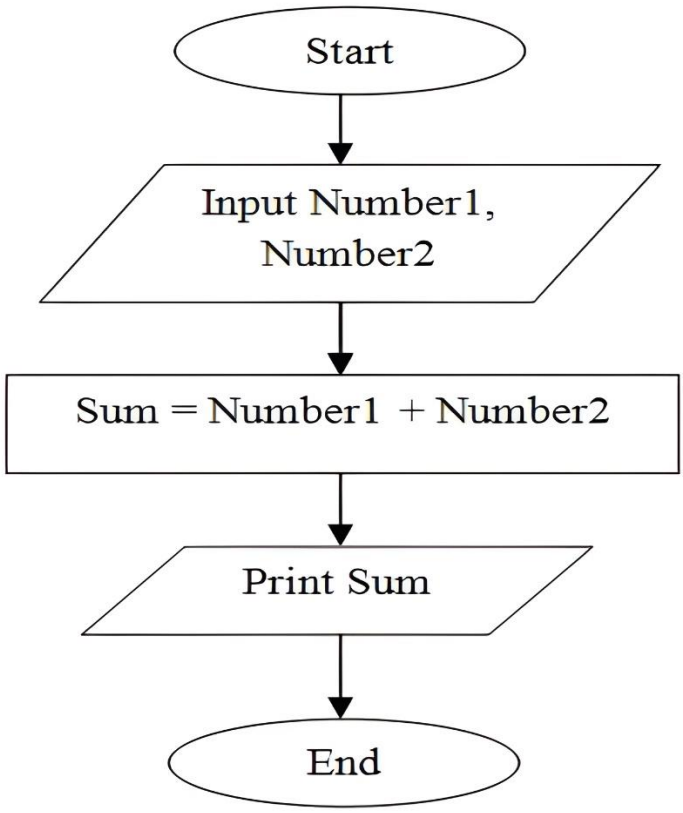
Level-2


Admin Side DFD - 1st Level
ADMIN
Request for Login
Response
1.0
Login
Check for login
Reply
AdminMst
Add / Edit Category
Response
2.0
Manage Category
Insert Data
Reply
CategoryMst
Add / Edit Item
Response
3.0
Manage Item
Insert Data
Reply
ItemMst
Manage Order
Response
4.0
Manage Order
View Order
Reply
OrderMst
View Report
Display Data
5.0
Manage Reports
View Report
Display Data
UserMSt / OrderMSt / PaymentMst

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

- ⇨ A flowchart is a type of diagram that represents a workflow or process.
- ⇨ A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task.
- ⇨ The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows.
- ⇨ This diagrammatic representation illustrates a solution model to a given problem.

Flowchart of addition of two numbers:



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

- ⇨ A use case diagram is a graphical depiction of a user's possible interactions with a system.
- ⇨ A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well.
- ⇨ The use cases are represented by either circles or ellipses. The actors are often shown as stick figures.

Use-case Diagram on bill payment on Paytm: