Omkar Gurav
BE IT
Roll No:-8048

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# SDM Theory Assignment 1

Q.1. Explain Booch & Rumbaugh Methodology.

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There are different object oriented methodologies given.

1. Object Oriented design by Booch:-

It is a common methodology which helps software developers in designing the software systems by means of object oriented standard.

It covers the system analysis & the system design phase of an object oriented system.

It comprises of following diagrams:-

- Object diagram
- Class diagram
- State transition diagram
- Module diagram
- Process diagram
- Interaction diagram

The Booch methodology recommends a development process & a micro development process.

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## 2. Object Oriented Modelling technique:-

OMT is methodology given by Rumbaugh & his coworkers which describes a method for the analysis, design & implementation of a system with the help of an object oriented technique.

It describes dynamic behaviour of objects involved within a system.

OMT encompasses 4 phases:

- System Analysis (Results are objects & dynamic & Functional models)
- System Design (Results are structure based architecture along with high level architecture strategy)
- Object Design
- Implementation

The OMT model is divided into three phases:

1. An object model (Object model & data dictionary)
2. A dynamic model (state diagram & event flow diag)
3. Functional model (data flow & constraints)

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Q.2. Explain UML structure.

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- UML structural diagrams depict the elements of a system that are independent of time and that convey the concepts of a system and how they relate to each other.

- Structural things are the nouns involved in the UML model.

- They constitute the static part of UML model & represents the theoretical & physical elements of model.

- There are 7 types of structural things:-

1. Class :- Class depicts collection of objects that have common state & behaviour. It is detailed explanation of a group of objects that share equivalent attributes, relationships & operations.

2. InterFace :- It is collection of operations which are used for postulating a service of a particular component of a class. They are used as glue for binding components altogether.

3. Collaboration :- It is used for documenting the implementation of a particular module involved within a software system. It is to describe the working & implementation style of a particular module.

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4. Use case:- Use cases are meant for specification of the interaction between the system. It is set of scenes that collectively work to achieve a common user goal.

5. Active class:- It is similar to normal class except that the object of an active class represents elements whose behaviour is synchronized with other elements involved within a software system scenario.

6. Component:- A component is a physical & expandable part of a system that offers the realization of a set of interface.

7. Node:- They are used to design the topology of the hardware on which a proposed software executes.

Q.3. Draw a use case diagram for following description. Consider an online travel planner software. Through this software, the user can book bus ticket, book car on rent, book a hotel room. It is mandatory to provide Payment information & provide address for booking of bus ticket, car on rent & hotel room. Identify actor & use cases.

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getType()

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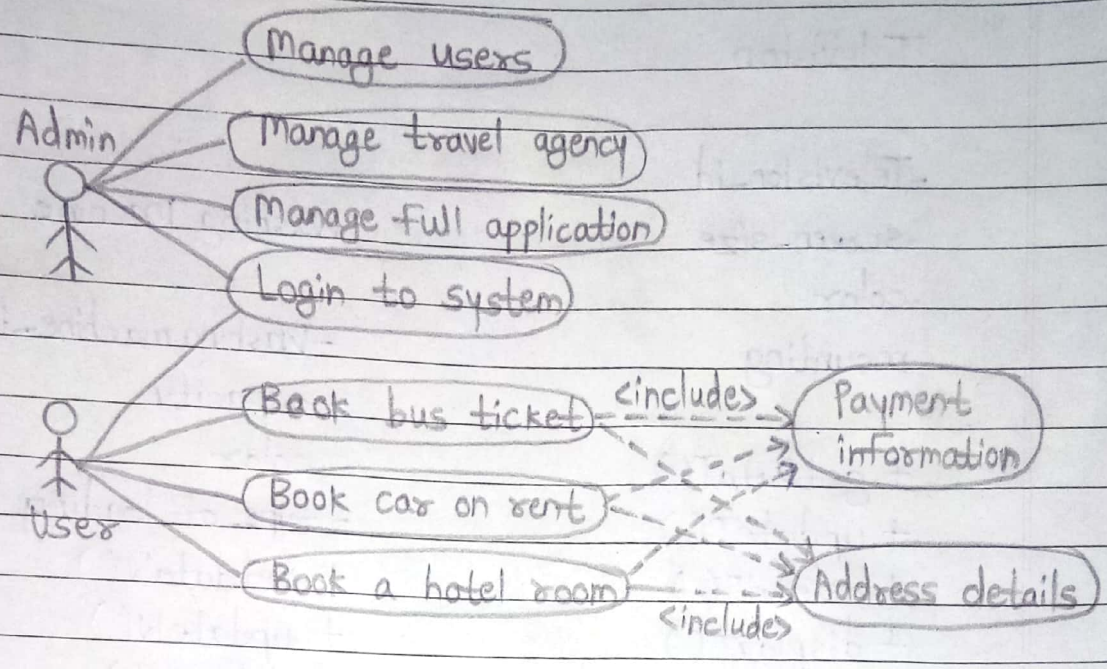


Q.4 An electronic gadget shop has Television & washing machines. Television has screen size, color, mounting (only wall or table mount are possible). Television come in two types namely LCD & LED. A washing machine has a capacity in litres, color, type of loading (Top or Front) A customer can order electronic gadget. Draw a class diagram for this with attributes & relationship Identify classes, attributes & methods.

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Classes: television, washing machine, LCD, LED

Attributes: television_id, screen_size, color, mounting, washing machine_id, capacity, color, type_of_loading

Methods: getdataT(), updateT(), deleteT(), displayT(), getdataW(), updateW(), deleteW(), displayW(), gettype()

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