



MODELING

With UML DIAGRAMS

Here is where we begin

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DIAGRAMS TYPES

01

ABOUT THE MODELING



“Simplification of reality” – high level logical.

IT’S representation of a system (from a perspective)

ADVANTAGE OF MODELING

- Permits you to specify the structure or behavior of a system.
- Helps you to visualize a system
- Helps to understand complex system – part by part
- Document the decisions – that you have made



02

ABOUT THE UML

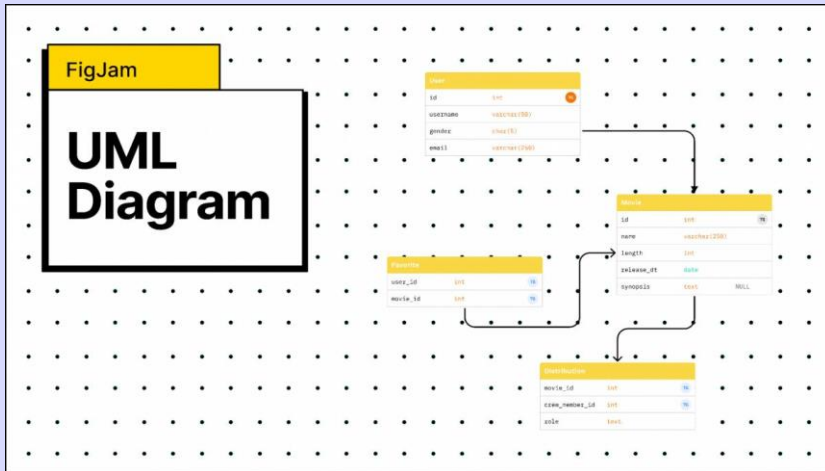


UNIFIED MODELLING LANGUAGE is not a programming language it's a graphical language to visualize and specify the boundary, structure, and the behavior of the system and the objects within it.

UML used to model a diverse range of systems - Like "Enterprise Info. System, Web-based application, Mobile Apps, Embedded systems"

02

ABOUT THE UML DIAGRAMS



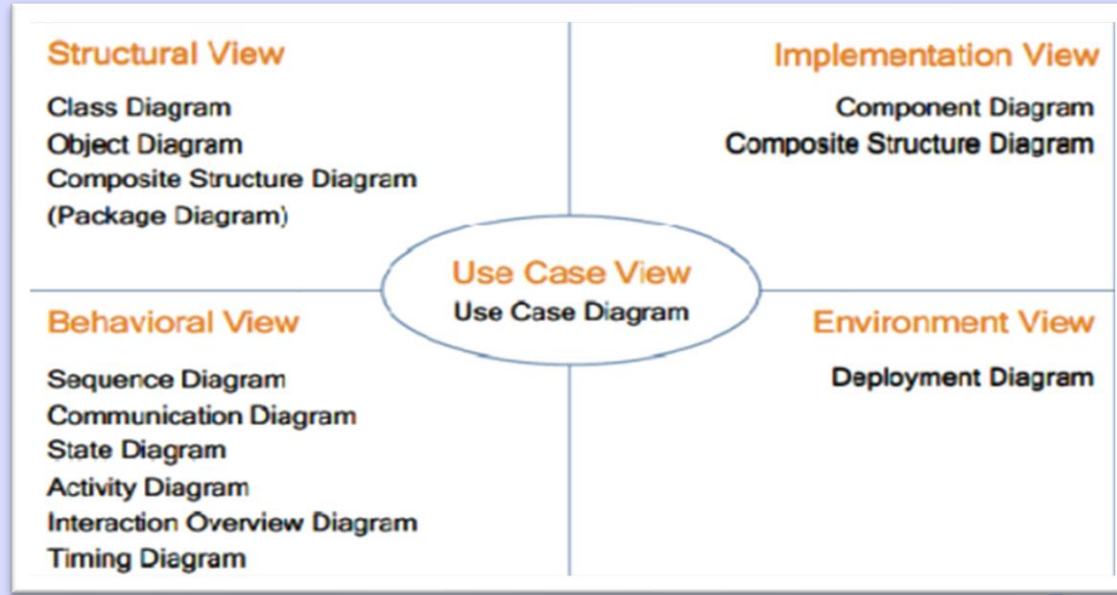
UML Diagrams are used to create different types of Models and diagrams that represent different views of the system.

Diagram is a graphical presentation of a set of UML Elements , Drawn as connected graph of vertices (things) and Arcs (relationships)

RELATION between UML DIAGRAMS and MODELS

- UML Diagram – used to create a model of system
- E.g. UML Use case diagram is used to create the Requirements model of the system.
- No real-life complex system can be completely understood from only 1 perspective
- Different diagrams-different views of system

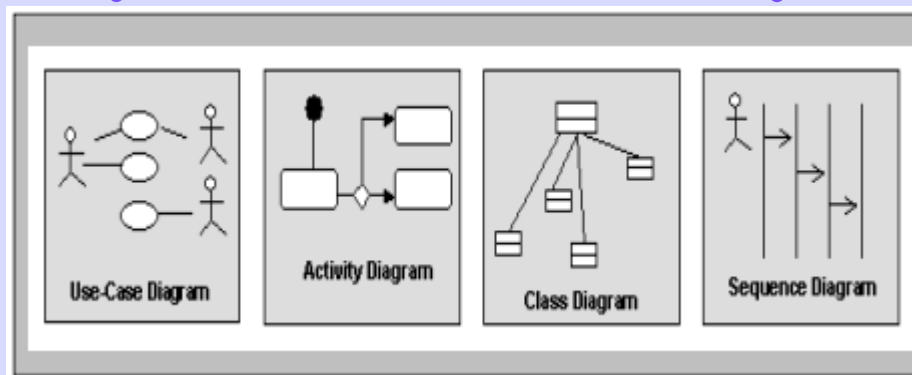
DIFFERENT TYPES of MODELS/VIEWS in UML



MOST WIDELY USED UML DIAGRAMS

USE-CASE

SEQUENCE

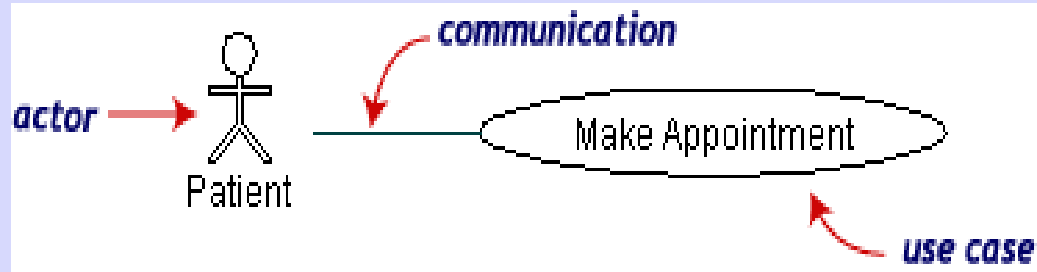


ACTIVITY

CLASS

USE-CASE DIAGRAM

- Shows a set of use-cases & actors & their relationships
- Used to create requirements view for end users/customers



USE-CASE DIAGRAM

- **Components =**

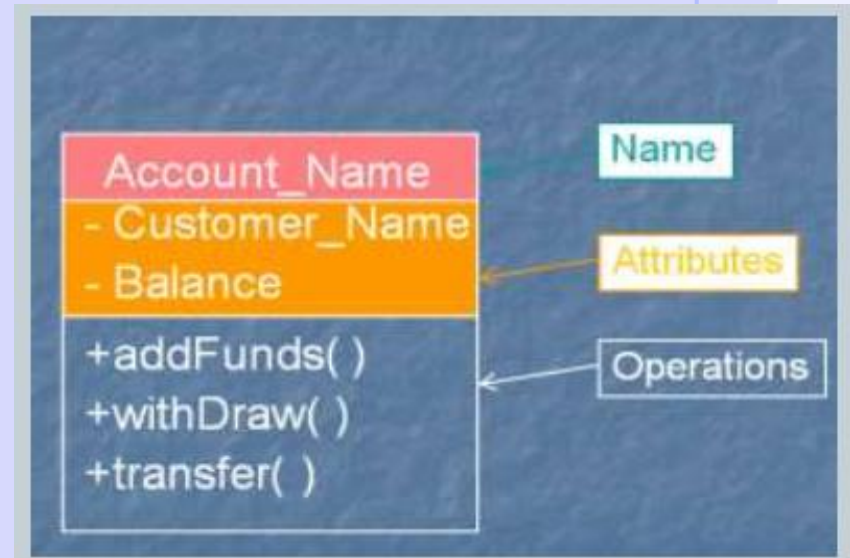
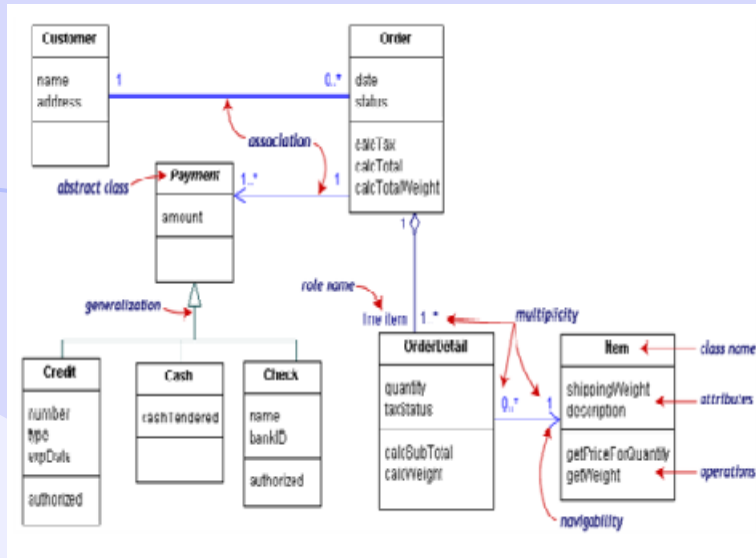
- Actors: A role that a user plays with respect to the system, including human users and other systems. e.g., inanimate physical objects (e.g. robot); an external system that needs some information from the current system
- Use case: A set of scenarios/features that describe an interaction between a user and a system.
- System boundary: rectangle diagram representing the boundary between the actors and the system.

Class DIAGRAM

- Used to create Structural Model and to describe structure and behavior in the use-cases
- Represents static-design view of system,
- Shows building blocks and relationships between them in an object-oriented system.
- Provide a conceptual model of the system in terms of entities and their relationships
- Detailed class diagrams are used for developers

Class DIAGRAM

- **Components** = entity (name, attribute, operation/method) - relation.

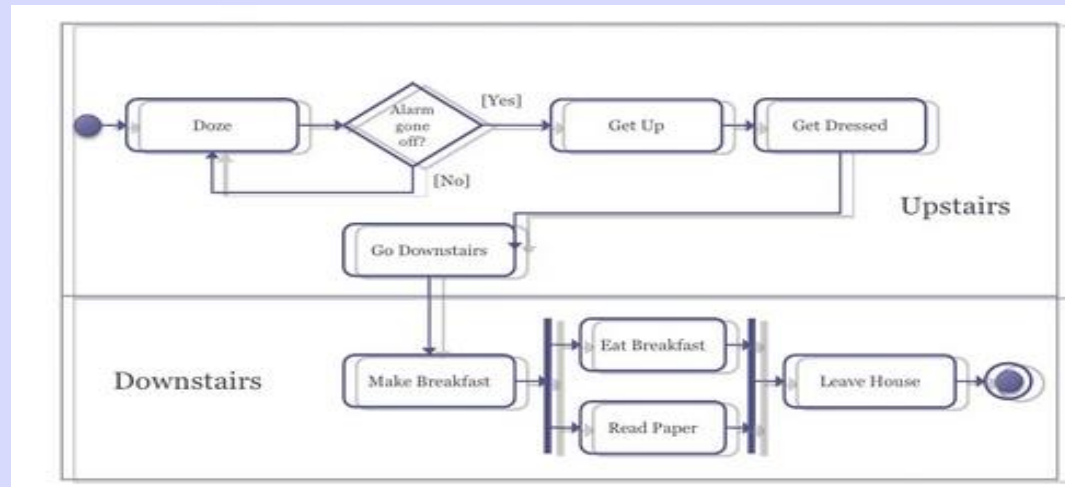


ACTIVITY DIAGRAM

- Activity is a UML behavior diagram that represents the workflow of stepwise activities of the system
- Shows flow of control from activity to activity within system (similar to Flow-chart with symbols while flowchart is a graphical diagram that represents the sequence of steps in one way to solve a problem)
- Represent high-level business processes, explain logic involved in system
- Activity diagram is used to represent the execution of the process.

ACTIVITY DIAGRAM

- **Components** = start & end node - action/activity - decision - control flow - forks & join - swimlanes.

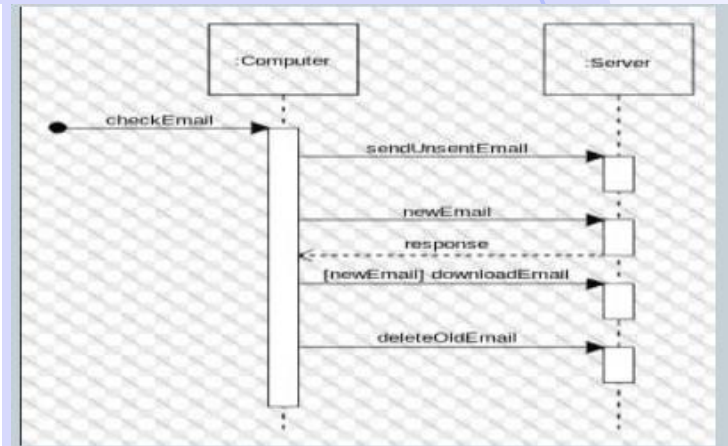
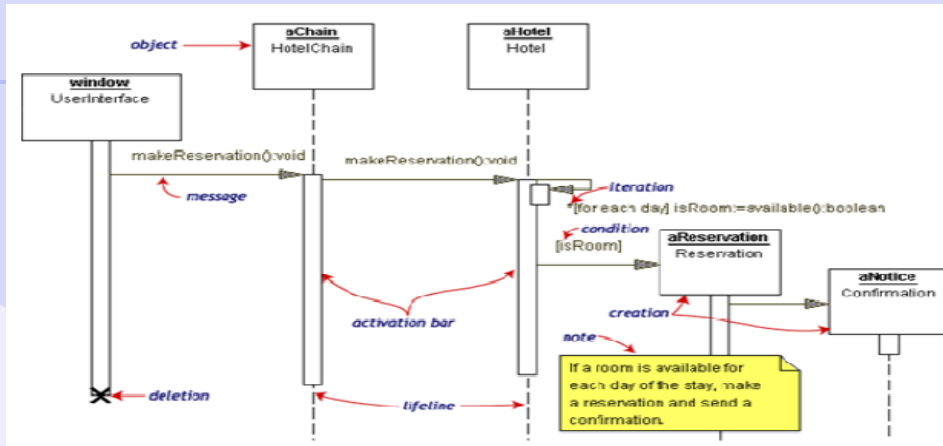


SEQUENCE DIAGRAM

- Represents Interaction among Objects (when system is running)
- Sequence diagrams are mainly used to represent the time order of a process.
- The vertical arrangement of messages exchanged among set of objects (having links) indicates their order
- Used to create dynamic/behavioral model.

SEQUENCE DIAGRAM

- **Components** = timeline/lifeline - activation bar - actor - object - message - object flow.



REFERENCE LINKS

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