Software Engineering
Week # 2 (b)

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Goals and requirements

Non-functional requirements may be very difficult to state precisely and imprecise requirements may be difficult to verify.

Goal
- A general intention of the user such as ease of use.

Verifiable non-functional requirement
- A statement using some measure that can be objectively tested.

Goals are helpful to developers as they convey the intentions of the system users.

Metrics for specifying nonfunctional requirements

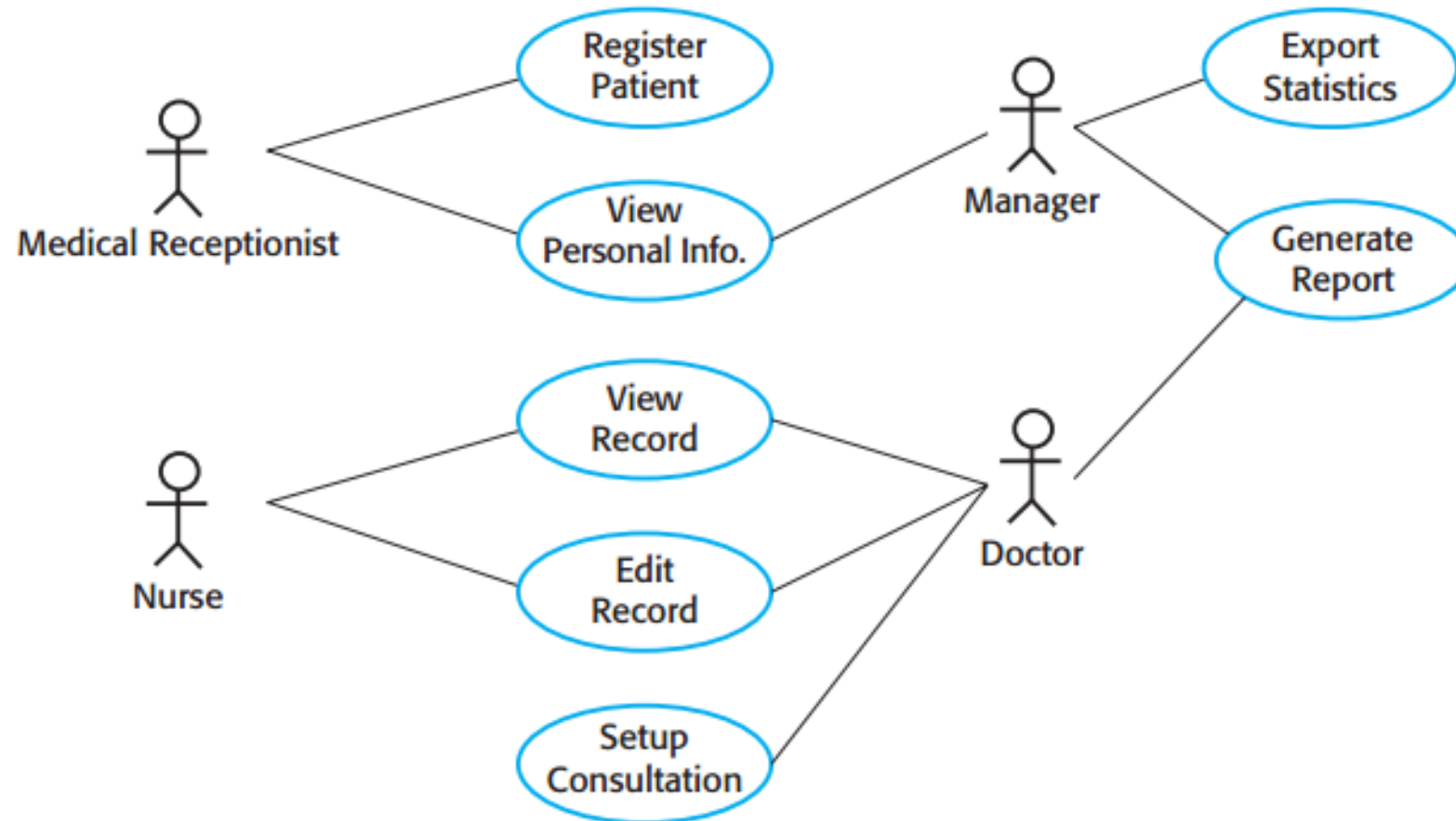| Property	Measure
Speed	Processed transactions/second User/event response time Screen refresh time
Size	Mbytes Number of ROM chips
Ease of use	Training time Number of help frames
Reliability	Mean time to failure Probability of unavailability Rate of failure occurrence Availability
Robustness	Time to restart after failure Percentage of events causing failure Probability of data corruption on failure
Portability	Percentage of target dependent statements Number of target systems

Use cases

Use-cases are a scenario based technique in the UML which identify the actors in an interaction and which describe the interaction itself.
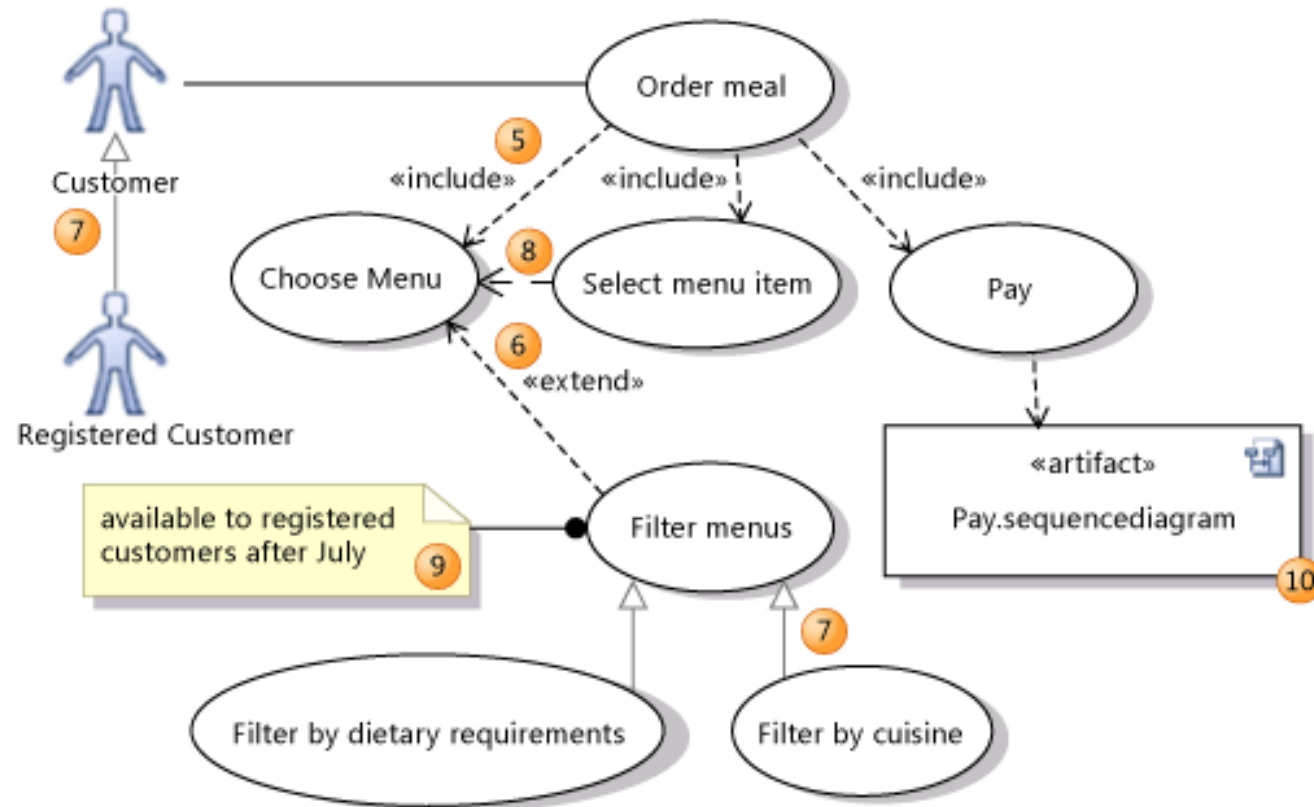
A set of use cases should describe all possible interactions with the system.

Sequence diagrams may be used to add detail to use-cases by showing the sequence of event processing in the system.

Use cases for the MHC-PMS

Use Case Example 2
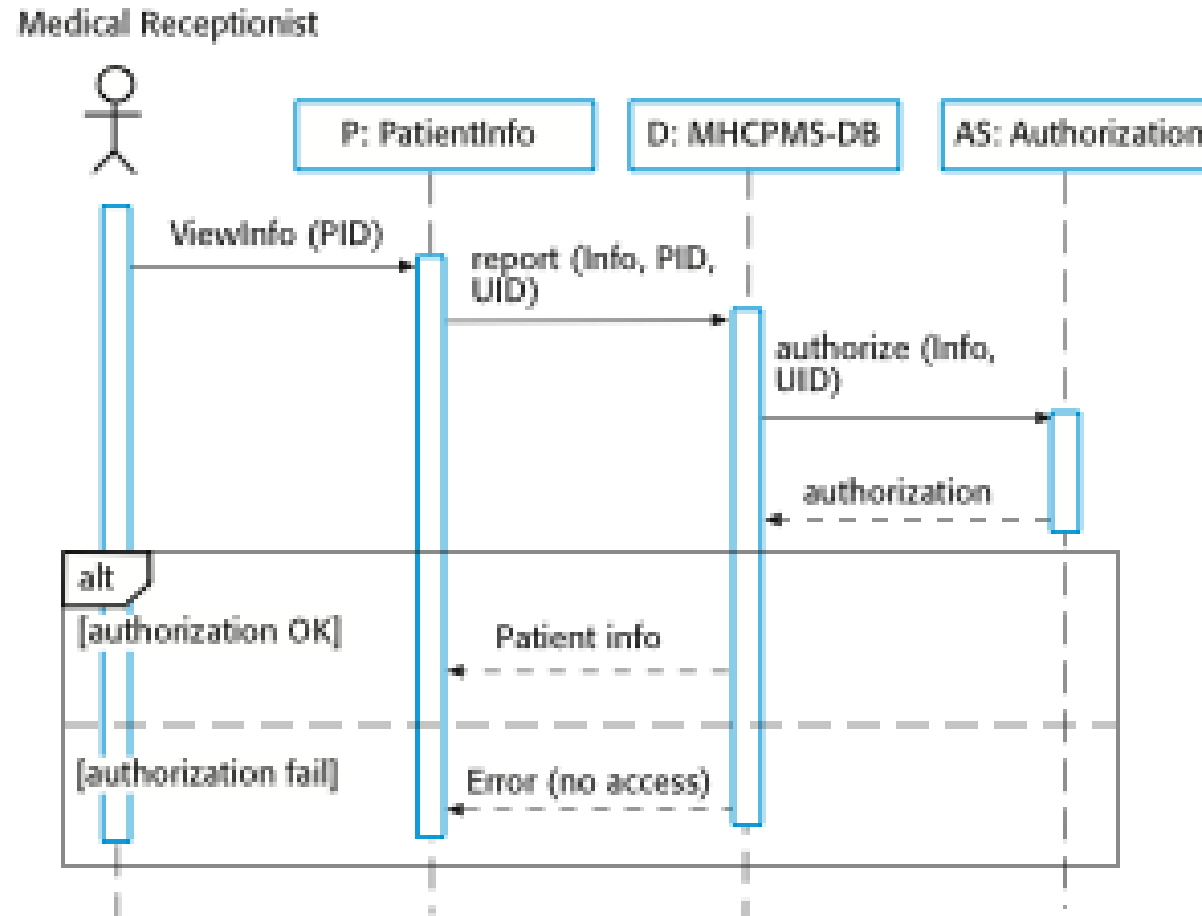
Sequence diagrams

Sequence diagrams are part of the UML and are used to model the interactions between the actors and the objects within a system.

A sequence diagram shows the sequence of interactions that take place during a particular use case or use case instance.

The objects and actors involved are listed along the top of the diagram, with a dotted line drawn vertically from these.

Interactions between objects are indicated by annotated arrows.

Sequence diagram for View patient information

Requirement Traceability Matrix

BR#	Module Name	Applicable Roles	Description
B1	Login and Logout	Manager Customer	**Customer:** A customer can login using the login page **Manager:** A manager can login using the login page of customer. Post Login homepage will show different links based on role
B2	Enquiry	Customer	**Customer:** A customer can have multiple bank accounts. He can view balance of his accounts only **Manager:** A manager can view balance of all the customers who come under his supervision
B3	Fund Transfer	Manager Customer	**Customer:** A customer can have transfer funds from his "own" account to any destination account. **Manager:** A manager can transfer funds from any

Business Requirement # for Guru99 banking project

Project Requirement Engineering

1. Abstract

2. User Specification

3. System Specification

4. Functional Requirements

5. Non-Functional Requirements

6. Use Case

7. Sequence Diagram

8. Requirement Traceability Matrix