INTERACTION Diagram

- Sequence
- Collaboration

Interaction Diagrams

- A Sequence diagram is an interaction diagram that emphasizes the time ordering of messages;

- A collaboration diagram is an interaction diagram that emphasizes the structural organization of the objects that send and receive messages.

SEQUENCE MODEL

- The sequence model elaborates the themes of use cases .
- There are two kinds of sequence models:
  - scenarios
  - sequence diagrams
- **SCENARIOS**
- it's a **sequence of events that occurs during one particular execution of a system.**
- The scope of a scenario can vary
  - Include all event in system or some part of event generated by certain objects
- scenario can be displayed as a list of text statements
- scenario contains message between objects
- each message transmits information from one object to another

scenario for a session with online stock broker

- person logs in
- system establishes secure communication
- system displays portfolio information
- person enters buy order for 100 shares of GE at market price
- system verifies sufficient funds for purchase
- system display confirmation screen
- person confirms purchases
- system places order
- system display transaction tracking number
- person logs out

SEQUENCE DIAGRAMS

- It shows the participant in interaction of a system with its actors & the sequence of messages among them.
- Each actor as well as the system is represented by a vertical line called **lifeline** and each message by a **horizontal arrow** from sender to receiver
- Time proceeds from top to bottom(not exact time), but the spacing is irrelevant
- each use case requires one or more sequence diagram to describe its behavior.
- Prepare a sequence diagram for each exception condition within the use case
- Note: sequence diagram can show concurrent signals

Contents of an Interaction diagram

- Objects
- Links
- Messages

Interaction Diagrams

- Interaction Diagrams are used for modeling the dynamic aspects of the systems.

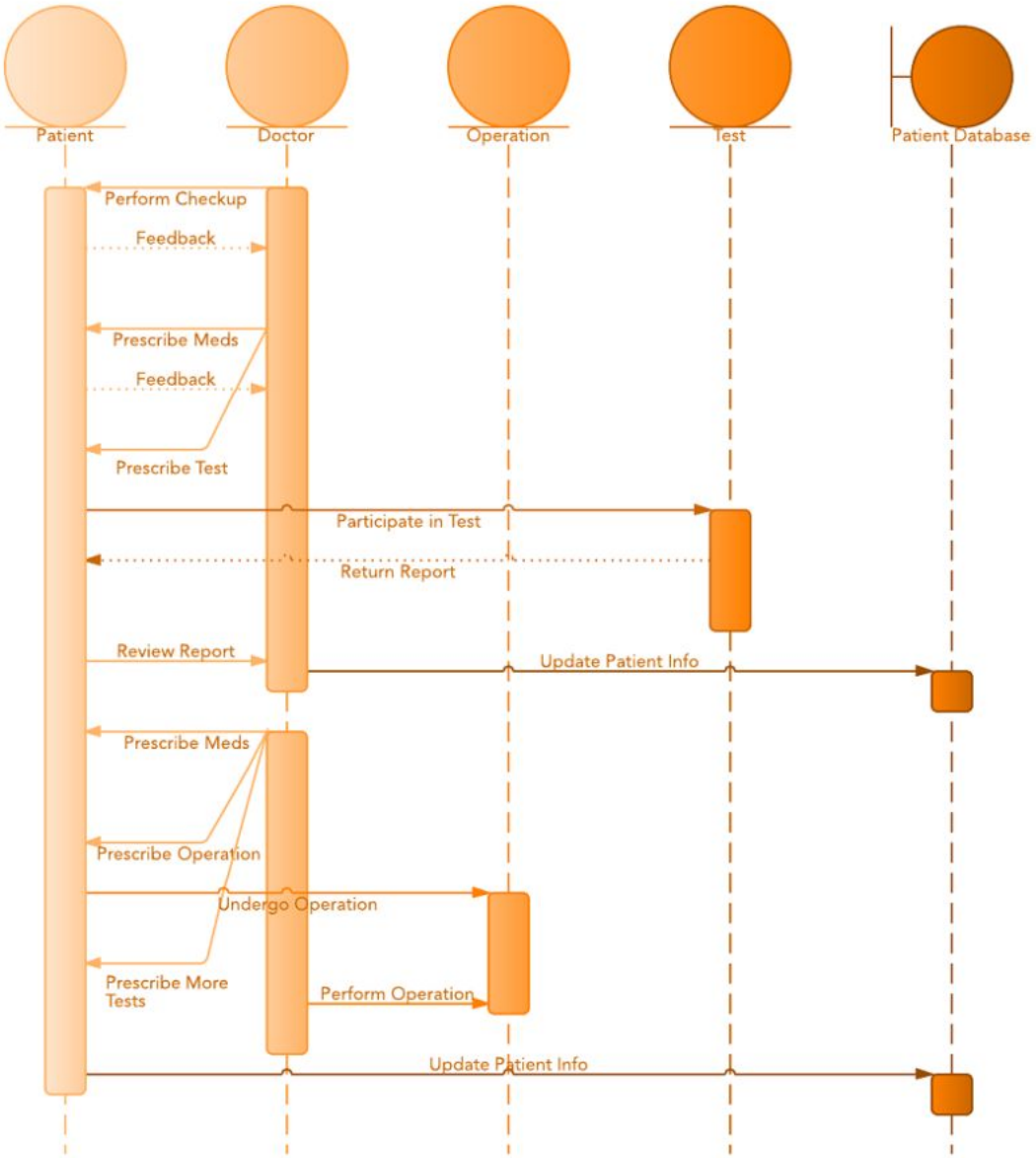
- It involves modeling prototypical instances of
  - classes,
  - interfaces,
  - components, and
  - nodes, along with messages that are dispatched among them.

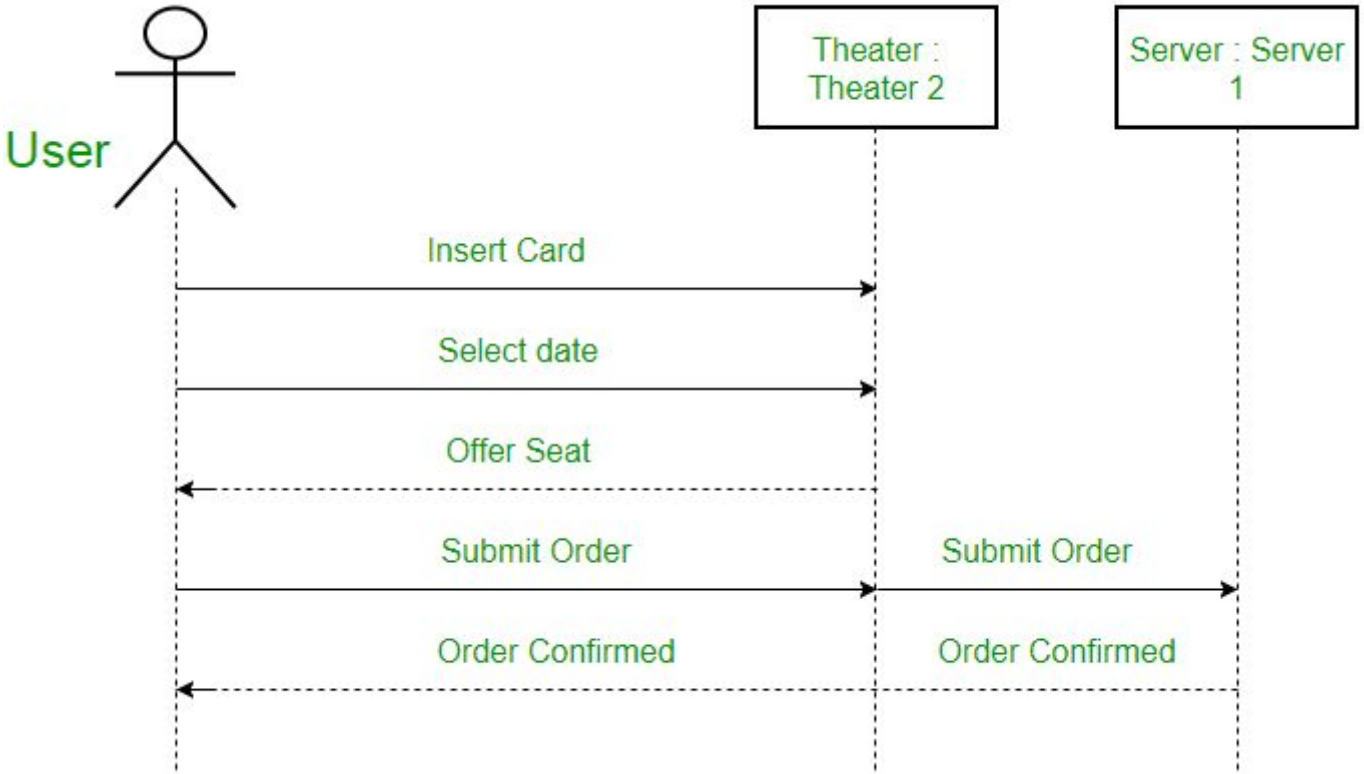
Sequence Diagrams

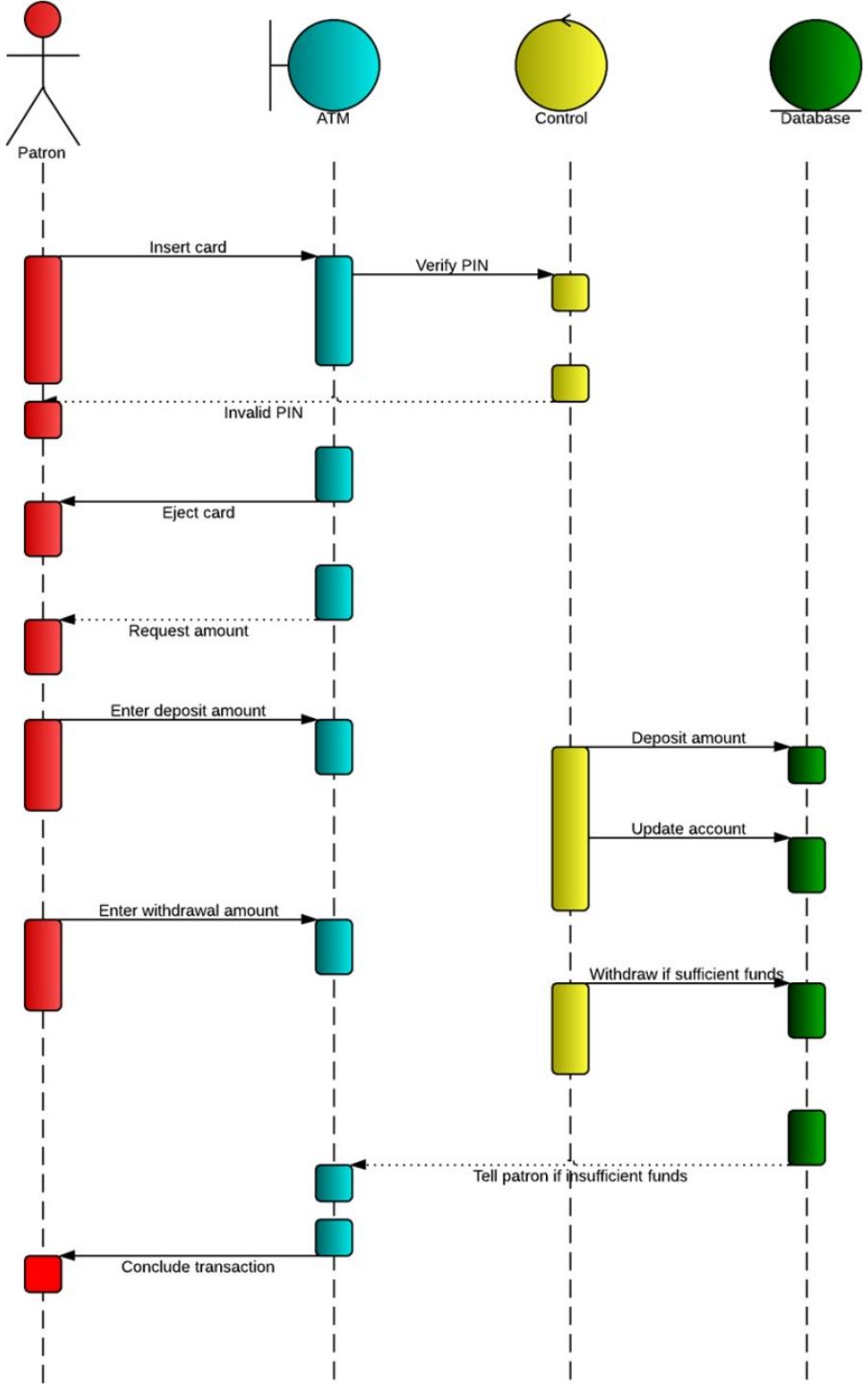
- To form sequence diagram, first place the objects that participate in the interaction at the top of the diagram , across the X-axis.
- Typically, place the object that initiates the interaction at the left, and increasingly more subordinate objects to the right.
- Next, place the messages that these objects send and receive along the Y axis, in order of increasing time from top to bottom.

Object Life Line Focus of Control

- It has two features that distinguish it from collaboration diagrams.
  - Object Life Line
  - Focus of Control
- Object Life Line
  - It is the vertical dashed line that represents the existence of an object
- Focus of Control
  - It is a tall, thin rectangle that shows the period of time during which an object is performing an action


Patient
Doctor
Operation
Test
Patient Database
Perform Checkup
Feedback
Prescribe Meds
Feedback
Prescribe Test
Participate in Test
Return Report
Review Report
Update Patient Info
Prescribe Meds
Prescribe Operation
Undergo Operation
Prescribe More Tests
Perform Operation
Update Patient Info


User
Theater : Theater 2
Server : Server 1
Insert Card
Select date
Offer Seat
Submit Order
Submit Order
Order Confirmed
Order Confirmed


Patron
ATM
Control
Database
Insert card
Verify PIN
Invalid PIN
Eject card
Request amount
Enter deposit amount
Deposit amount
Update account
Enter withdrawal amount
Withdraw if sufficient funds
Tell patron if insufficient funds
Conclude transaction

Collaboration Diagram

- A Collaboration diagram shows up the organization of the objects that participate in an interaction.
- Collaboration diagrams have two distinguished features that separate it from sequence diagrams.
- First, there is the path to indicate how one object is linked to another.
- Second, there is the sequence number to indicate the time order of a message.

Collaboration Diagram

- A collaboration diagram displays object interactions organized around objects and their links to one another