Software Engineering

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Experiment no. 5

Aim : Develop sequence, collaboration & state diagram for the project.

Theory :

Sequence Diagram :

A sequence diagram is a type of UML interaction diagram that illustrates the interaction between objects in a system arranged in a time sequence. It visually depicts the messages exchanged between objects along a timeline, showing the order in which these ~~ma~~ messages occur.

Some key characteristics of sequence diagram :

- Objects : The diagram represents the participating objects in the interaction, typically displayed as vertical lifelines. These objects can be software components, external systems, or even users.
- Time Sequence : The horizontal axis represents time, with messages flowing from left to right, indicating the order in which they are sent.
- Messages : Arrows between lifelines represent messages exchanged between objects. These messages can be requests, responses, events or data transfers.
- Activation : A lifeline is drawn as a solid line during the period an object is involved in the interaction. When an object is inactive, the lifeline is dashed.

P.T.O

List of objects in the scenario :
- User
- Ticket Service Provider (TSP)
- EasyPay Admin
- Bank

State diagram :

- States :-
  - Pending : The initial state where seats might be temporarily reserved.
  - In Progress : The user is selecting movie, showtime, & seats.
  - Booked : The tickets are booked but not necessarily paid for.
  - Completed : The booking is completed & with successful payment.
- Events / Actions :
  - start Booking : Triggers the transition from inactive state to Pending state.
  - Cancel Booking : Triggers the transition from any state to the cancelled state.
  - select movie / showtime / seats :- Trigger the transition from Pending to In Progress state.
  - User confirmation : Triggers the transition from In Progress to Booked state.
  - Complete Booking (Payment) : Triggers the transition from ~~booking~~ to booked to completed state.

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Date

Conclusion :-

The sequence diagram illustrates the successful process of a user booking a movie ticket through a ticket service provider. The user browses movies, selects a showtime & seats, confirms the purchase, & the system verifies payment with the bank before sending a confirmation email.

The state diagram shows the possible states a movie ticket booking can be in, from initiating the booking to its completion. Events or actions trigger transitions between these states.

In case, successful booking flow starts from 'Pending', goes through 'In Progress' and 'Booked' states and reaches 'Completed' upon payment.

COLLABARATIVE DIAGRAM

It is also known as communication diagram. It is a type of UML diagram that depicts the interactions between participants in a system to achieve a specific goal. It visually represents how different objects work together to complete a task.

The key elements include :-

1. Participants : Represents objects involved in collaboration. Eg :- User, Online Payment Management system, Service Provider, Banks.
2. Interactions : Arrows connecting participants showing the messages or data exchanged between them. Messages can be labeled with details like method calls & return values.
3. Sequence :- Interaction are typically numbered to indicate the order in which they occur.

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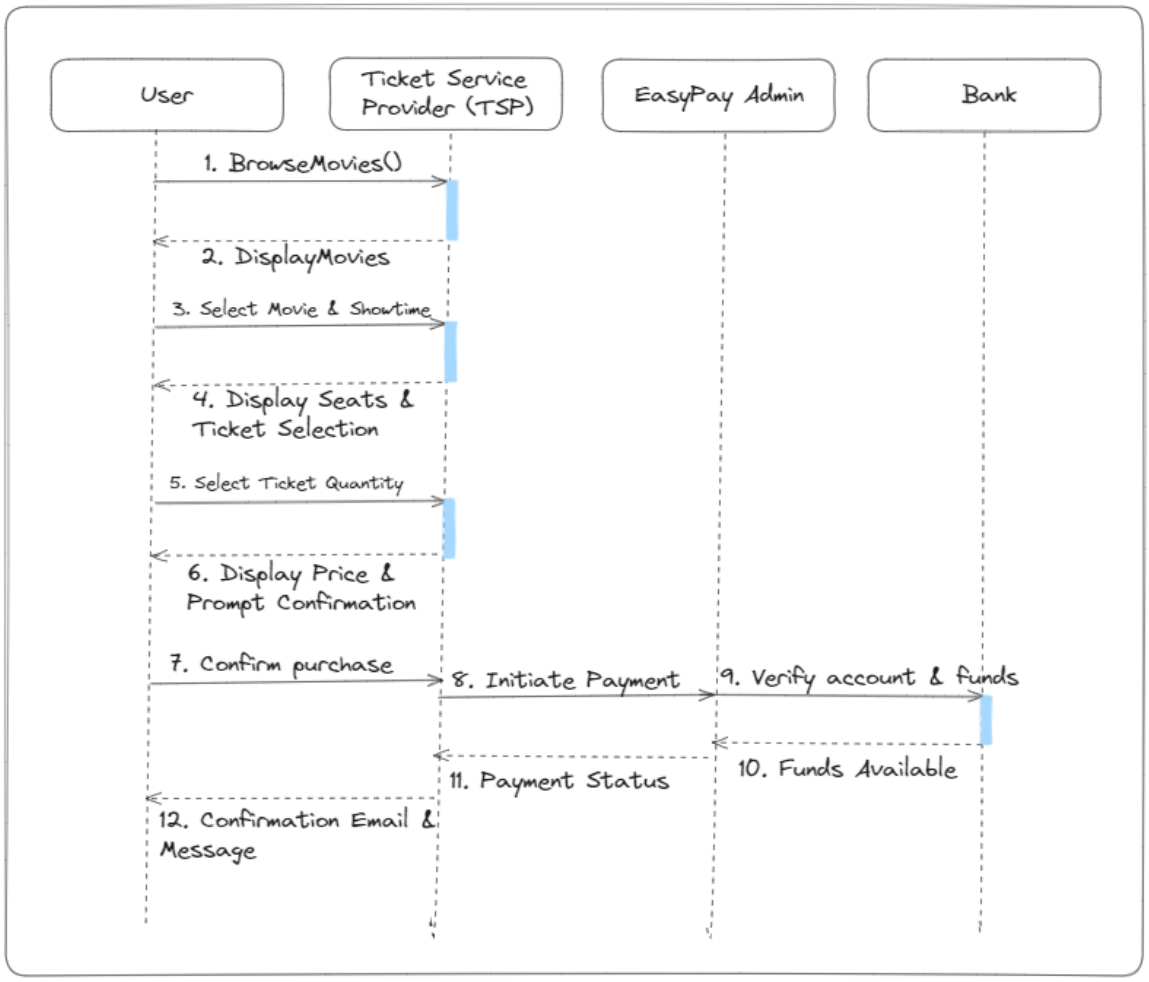
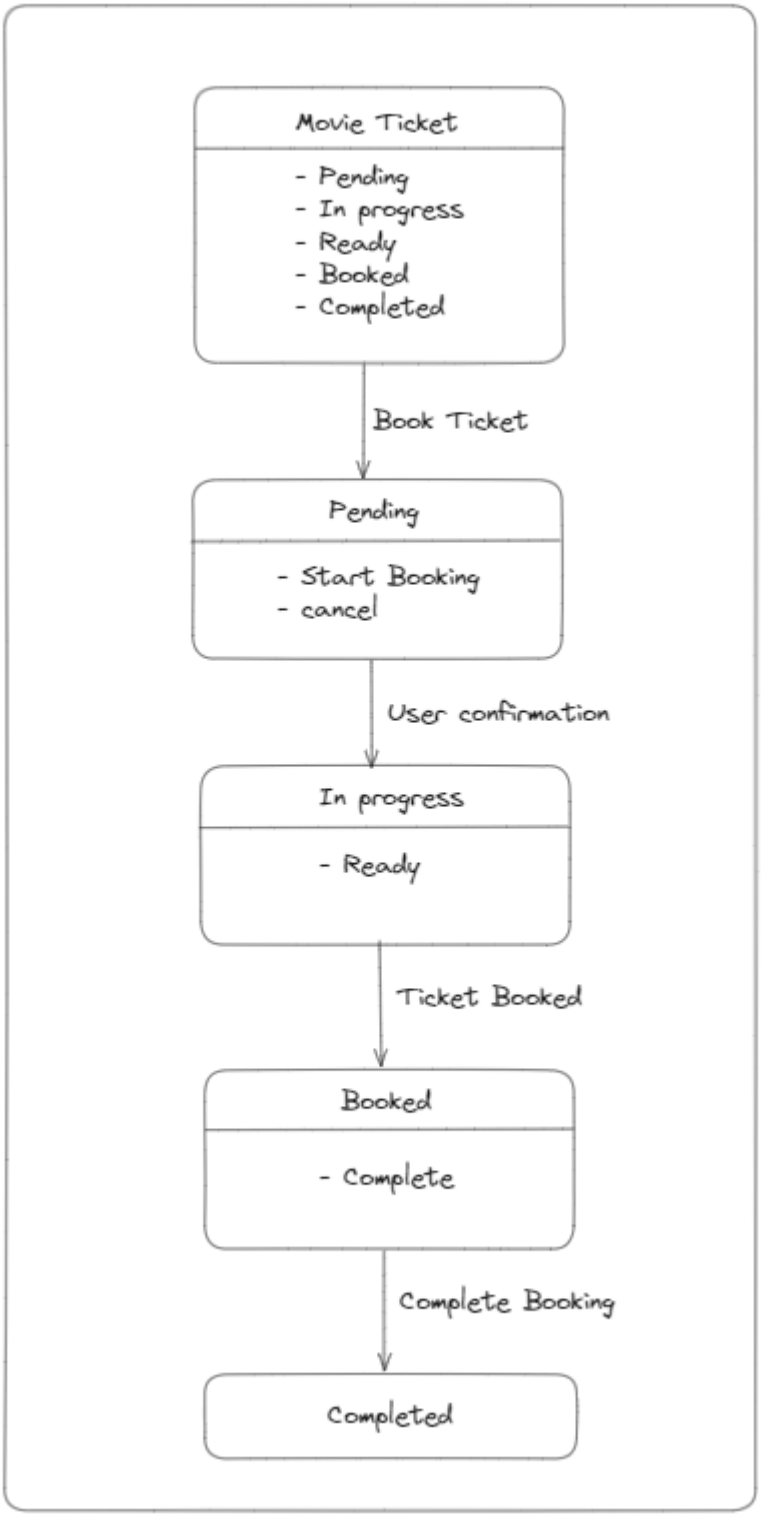
EXPERIMENT NO. :-05

SEQUENCE DIAGRAM



STATE DIAGRAM



COLLABRATION DIAGRAM: