CT&DT-SPSU-”ANONYMOUS”-TASK#10

INFERENCE MAPPING

Railway Ticketing Management System:-

1. Problem Definition: The Railway Ticketing Management System aims to automate the booking, cancellation and management of train tickets. The system must handle:

- Ticket reservations (both online and offline).
- Seat availability.
- Payment processing.
- User and admin interactions.
- Reports on bookings, cancellations and availability.

2. Key Entities & Components:

1. User (Passenger):
   - Input: Login credentials, destination, travel date, preferred train, class of travel.
   - Processes: View train schedule, check availability, book/cancel tickets, make payments.
   - Outputs: Ticket confirmation/cancellation, payment receipts.
2. Admin (Railway staff):

- Inputs: Train schedules, fare structure, booking status, maintenance logs.
- Processes: Add/modify train schedules, update availability, monitor reports.
- Outputs: Reports on booking, cancellations, system updates.

3. Train Information Systems:

- Inputs: Train details (number, class, capacity), schedule.
- Processes: Availability check, schedule updates, route management.
- Outputs: Available seats, train schedules.

4. Ticket Reservation System:

- Inputs: User booking request (train number, class, date), seat availability, payment info.
- Processes: Validate availability, process booking, assign seat, fare calculation.
- Outputs: Booking confirmation, ticket details, PNR(Passenger Name Record).

5. Payment System:

- Inputs: Fare amount, user payment method (credit card, debit card, UPI, etc.).
- Processes: Validate payment, process transaction.
- Outputs: Payment confirmation, receipt.

3. Inference Mapping (Flow of Logic and Dependencies):

Step 1: User Inquiry

- Input: User inputs date, origin, destination and preferred train.
- Process:
- System checks Train Information System for the schedule.
- The seat Availability System is queried to check available seats.
- Output: Display available trains and seat classes to the user.

Step 2: Booking Request

- Input: User selects train, class, and seat preference and intiates booking.
- Process:
- Ticket Reservation System checks availability.
- Fare Calculation is done based on the route, class and any applicable discounts.
- The Payment System handles the transaction.
- Output:
- On success: Ticket confirmation (with PNR), seat assignment.
- On failure : Error message(e.g., payment failure or no available seats).

Step 3: Seat Allocation:

- Input: Successful payment and booking details.
- Process:
- Seat Availability System updates to reduce the available seats.
- Train Information System reflects the updated status of the train.
- Outputs: Updated availability for future users.

Step 4: Cancellation:

- Input: User requests cancellation using PNR.
- Process:
- Cancellation System validates the PNR, checks cancellation rules, and calculates the refund.
- Seat Availability System updates available seats if the cancellation is successful.
- Payment System processes the refund.
- Output: Cancellation confirmation and refund receipt.

Step 6: Reporting

- Input: System generates data on bookings, cancellations, seat availability and revenue.
- Process:
- Report Generation System processes data from multiple subsystems.
- Output: Detailed reports for admins on daily operations, revenue and user activity.

4. Decision Points and Inferences:

1. Booking Confirmation:

- Decision based on seat availability, payment success and user details.

2. Cancellation and Refund:

- Decision based on cancellation rules, fare type and time of cancellation.

3. Seat Availability:

* Inference from current bookings, cancellations and train capacity.

4. Payment Success:

* Inference from the transaction status, user payment credentials, and the amount charged.

TEAM MEMBERS:-

B. PRAVEEN
S.V. SAI JASWANTH
M. SRI VIVEK
K. ESHWARAIAH
T. BRAHMAIAH