Lab01

1. Create a detailed list of functional and non-functional software requirements for the

Railway ticketing portal system.

2. Write 3 Features using Gherkin Syntax.

1. **Detailed List of Functional and Non-functional Software Requirements:**

Functional Requirements:

*Basic Search:* Users can search for trains based on destination, date, and time.

*Advanced Search:* Users can filter search results based on train type, class, and available discounts.

One-way, round trip, and multi-city booking options should be available.

*Shopping Cart:* Users can add multiple tickets to a shopping cart for a week.

*Dynamic Pricing:*

Full fare for trains before 9:30 am and during rush hours (4:00 pm - 7:30 pm).

Saver ticket for trains between 9:30 am and 4:00 pm.

5% discount for trains after 7:30 pm.

Additional discounts for seniors (34%) and families with children (50%).

Reservation Management:

View and modify reservations across various booking channels.

Create, modify, and cancel reservations.

Customer Profile Management:

Users can create, edit, and view their profiles.

Single Rail Card: Users can hold only one type of rail card.

Passenger Type Management:

Define various passenger types with relevant concessions.

Apply promotions and discount coupons during the booking process.

Multi-Language Support:

Display data in English, Spanish, German, and French.

Additional languages can be requested.

Integration with External Systems:

Automated supplier payments, reconciliation, and adjustments.

Integration with SAP, Intuit QuickBooks, and Microsoft AX accounting systems.

Non-functional Requirements:

Performance:

The system should respond to search and booking requests within 5 seconds.

Shopping cart transactions should be processed within 3 seconds.

Reliability:

The system should have a 99.9% uptime.

Data integrity and consistency should be maintained.

Security:

User data, including passwords, should be securely stored and encrypted.

Access controls should prevent unauthorized access to sensitive information

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Scalability:

The system should handle a minimum of 10,000 simultaneous users.

Scalable architecture to accommodate future growth.

Usability:

The interface should be user-friendly and accessible to users with disabilities.

Response time for user interactions should be minimal.

Compatibility:

The system should be compatible with popular web browsers (Chrome, Firefox, Safari).

Mobile responsiveness for access from various devices.

Multi-language Support:

Language translations should be accurate and culturally appropriate.

**2. Gherkin Syntax Features:**

Feature: Ticket Search and Booking

Scenario: User searches and books a one-way ticket

**Given** the user is on the ticketing portal homepage

**When** the user searches for a one-way ticket to a destination on a specific date

**Then** the system should display available trains and pricing

**When** the user selects a train and books a ticket

**Then** the system should confirm the booking and update the shopping cart

Feature: Dynamic Pricing

Scenario: User applies discounts during ticket booking

**Given** the user has selected a train for booking

**When** the user chooses a travel time during rush hours

**Then** the system should apply full fare pricing

**When** the user selects a saver ticket during off-peak hours

**Then** the system should apply the appropriate discount

**When** the user adds a senior or family rail card

**Then** the system should apply the relevant discount

Feature: Reservation Management

Scenario: User modifies and cancels reservations

**Given** the user is logged in and has existing reservations

**When** the user views the reservation history

**Then** the system should display a list of past reservations

**When** the user selects a reservation to modify

**Then** the system should allow changes to date, time, or passenger details

**When** the user cancels a reservation

**Then** the system should confirm the cancellation and update the reservation history