**Project Selection and Project Plan**

**1) List your team members:**

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**2) Project Name:**

**Railway Reservation System**

**3) Project Description:**

The **Railway Reservation System** is a software application designed to facilitate train ticket booking, cancellation, seat availability checks, and user account management. It allows passengers to create accounts, book train tickets in different classes, check seat availability, and cancel tickets when necessary. The system also includes administrative functionality for managing train schedules, fare structures, and ticket booking data.

**4) Describe Your Software System:**

The **Railway Reservation System** is classified as an **Interactive Transaction-Based Application**. It involves multiple real-time transactions, such as booking, cancellation, and querying for seat availability, requiring continuous user interaction with the system.

**5) Project Plan:**

The development plan for this project includes:

* **Initial Setup**: Set up the environment, define system architecture, and plan database design.
* **Core Functionality Development**: Implement key features like user account creation, ticket booking, and seat availability checks.
* **Testing and Feedback**: Conduct iterative testing to ensure functionality, usability, and stability.
* **Enhancements and Iteration**: Based on feedback, add new features or modify existing ones.
* **Final Release and Deployment**: Complete the development cycle with final testing and deployment.

Using **Agile Methods**, the project will be developed incrementally, allowing for continuous improvements and user feedback.

**6) Requirements:**

**User Requirements:**

* Users must be able to register and create accounts.
* Users must be able to log in and book train tickets.
* Users must be able to cancel booked tickets.
* Users must be able to check seat availability in different train classes.
* Users must be provided with a unique PNR for each booking.

**System Requirements:**

* The system must handle user authentication securely.
* The system should support multiple simultaneous bookings and cancellations.
* The system must store and retrieve train schedules, ticket information, and user data.
* Data persistence should be ensured using a reliable database or data storage system.
* The system must provide real-time seat availability updates.

**7) Stakeholders:**

* **Passengers**: The primary users who book and cancel tickets.
* **System Administrators**: Responsible for managing the system's backend, adding trains, and updating schedules.
* **Railway Operators**: Oversee train operations and ensure the system is updated with the latest routes and schedules.
* **Developers**: Responsible for building and maintaining the system.
* **Support Team**: Ensures that the system is operational and assists users with issues.

**8) Development Methodology:**

The project will use **Agile Methods**, which offer flexibility in handling changing requirements and continuous feedback from stakeholders.

**9) Functional Requirements:**

* User registration and login functionality.
* Train search and selection based on source and destination.
* Ticket booking and generation of unique PNR for each booking.
* Seat availability checking in different classes (1AC, 2AC, SL).
* Ticket cancellation functionality.
* Persistent storage of user history and bookings.

**10) Non-Functional Requirements:**

* **Performance**: The system should handle multiple users and transactions simultaneously without significant delay.
* **Scalability**: The system should be scalable to accommodate more trains, users, and transactions as demand grows.
* **Reliability**: The system must ensure data consistency and transaction accuracy, especially for seat availability and booking status.
* **Security**: User data, such as personal details and payment information, must be securely stored and encrypted.
* **Availability**: The system must be available 24/7 for users to book or cancel tickets.

**11) Usability Requirements:**

* The user interface should be intuitive and easy to navigate, with clear prompts for actions like booking, cancellation, and checking seat availability.
* Error messages should be clear and guide users towards resolving issues (e.g., invalid train number, unavailable seats).
* The system should support multiple platforms (desktop, mobile) and be accessible to a wide range of users.