PES UNIVERSITY

Department of Computer Science & Engineering

Database Management System-UE21CS351A

Mini Project Synopsis Report

TITLE:

Airlines Management System

TEAM No - 3

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Section A

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Abstract:

The Airlines Management System project is designed to provide a user-friendly platform for users to access information about various airlines and the aircraft each airline operates. This non-real-time system allows users to create profiles, view airline and aircraft details, and book seats across different classes, including economy, business, and first class. The system ensures efficient seat management and stores user booking information securely.

Key Features:

1. *User-friendly Front End:*

The system offers an intuitive and user-friendly front end, enabling users to easily navigate and access information about different airlines and their respective fleets of aircraft.

2. *User Profile Creation:*

Users have the option to create profiles by entering their basic details, such as name, contact information, and frequent flyer information. This feature streamlines the booking process by storing user information securely for future use.

3. *Detailed Airline and Aircraft Information:*

Users can access comprehensive information about various airlines, including their history, routes, and customer reviews. Additionally, they can view details about the aircraft operated by each airline, such as model, seating capacity, and amenities.

4. *Seat Booking:*

The system provides a seat booking feature, allowing users to select seats from different classes, such as economy, business, and first class, based on availability for a specific flight.

5. *Booking Confirmation:*

After selecting seats, users can confirm their bookings. All booking details, including passenger information, flight details, and seat preferences, are securely stored in the system's database.

Overall, the Airlines Management System project offers a simplified and efficient way for users to interact with airlines, explore aircraft options, create profiles, and book seats across various classes. While it is not a real-time system, it provides a foundation for future enhancements, such as integrating payment processing and real-time flight availability updates. This project aims to enhance the user experience and streamline the booking process for airline passengers.

User requirements specification:

Functional Requirements

1. User Profiles

Description: Users should be able to create and manage their profiles within the system.

Requirements:

- Users must provide their name, date of birth and contact information during profile creation.
- Users should be able to edit their profile information.
- Profiles should be securely stored and accessible only to authorized users.

2. View Airlines and Aircraft Information

Description: Users should be able to view detailed information about different airlines and the aircraft they operate.

Requirements:

- The system should display a list of airlines with their respective details, including routes, and customer reviews.
- Users should be able to select an airline to view information about the aircraft it owns, including model, seating capacity, and amenities.

3. Seat Booking

Description: Users should be able to book seats on flights based on availability and class preference.

Requirements:

- The system should provide options to book seats in economy, business, and first class.
- Users should be able to view the availability of seats for a specific flight.
- Users must select a flight, class, and seat to proceed with booking.

4. Booking Confirmation

Description: Users should be able to confirm their seat bookings and store their details in the system.

Requirements:

- After selecting a seat, users should have the option to confirm their booking.
- Booking details, including passenger information, flight details, and seat preferences, must be securely stored in the system's database.

Non-Functional Requirements

5. Security and Privacy

Description: The system should ensure the security and privacy of user information and booking details.

Requirements:

- User profiles and booking information should be stored securely.
- Access to user profiles should be restricted to authorized users only.
- The system should comply with relevant data protection and privacy regulations.

6. Performance and Responsiveness:

Description: The system should exhibit high performance and responsiveness to ensure a seamless user experience.

Requirements:

- The system should respond to user interactions promptly, with minimal delays.
- Page loading times should be optimized to minimize user wait times.
- Performance benchmarks and load testing should be conducted to ensure that the system meets acceptable performance standards.

These requirements encompass the core functionalities of the system, focusing on user interaction, information presentation, booking process, and security measures. They are critical to ensuring a seamless and secure experience for users interacting with the Airlines Management System.

Hardware requirements:

- *Client Devices:*
  - Standard desktop or laptop computers for accessing the front-end.
  - Mobile devices (smartphones or tablets) for st`aff who need mobility within airports.
  - Self-service kiosks for passenger check-in at airports (if applicable).

- *Server Infrastructure:*
  - Powerful servers to host the back-end services and database.
  - Redundancy and failover mechanisms for high availability.
  - Adequate storage capacity to store data, logs, and backups.

- *Networking:*
  - High-speed and reliable network connections to handle data traffic between front-end and back-end components.
  - Load balancing hardware or software to distribute traffic efficiently.

- *Storage*:
  - Sufficient storage capacity, including fast storage devices for database storage and retrieval.

Software Requirements:

Front-End Software Requirements:

- Web Development Framework/Library:
  - Frameworks like React.js for building the user interface.
  - HTML5 and CSS3 for markup and styling.
  - JavaScript for interactivity.

- Integrated Development Environment (IDE):
  - Code editors or IDEs like Visual Studio Code, WebStorm, or Sublime Text for front-end development.

- Version Control:
  - Git for managing and tracking changes in the front-end code.

Back-End Software Requirements:

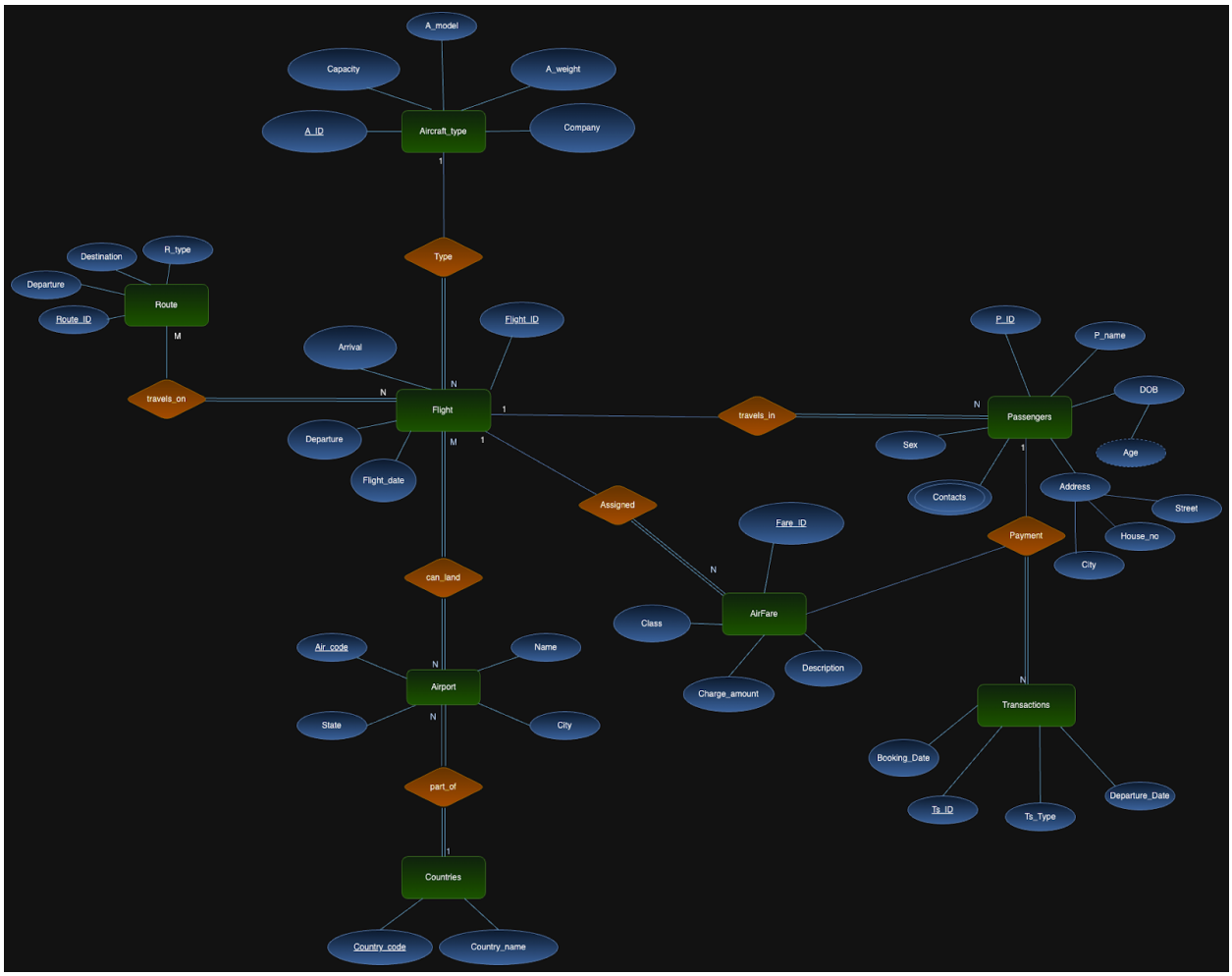
- Server-Side Language:
  - We will use a simple Server-Side Language like Python

- Database:
  - Use a lightweight and easy-to-set-up database system like MySQL for storing project data.

- Version Control:
  - Implement basic version control using Git to track changes in your back-end code, ensuring collaboration and code management.

- Testing:
  - Conduct manual and minimal automated testing using applications like Postman.

ER Model: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Countries
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Relational Schema:

Expected Outcome:

The project Airline Management Database System will feature a well-designed database schema that effectively organizes and manages essential data such as flights, passengers, crew, airports, and bookings.
The system will offer user-friendly interfaces to perform key tasks like flight scheduling.While excluding real-time payment processing, the system will allow passengers to search for flights, make reservations, and access booking details, whilst demonstrating the booking and reservation workflow.
Our goal is to implement features for scheduling flights, assigning aircraft, specifying departure and arrival times, and managing flight routes, as well as the assignment and scheduling of flight crews.
In conclusion, the expected outcome of this mini-project is a functioning prototype of an Airline Management Database System that showcases essential functionalities without real-time aspects. It serves as a practical demonstration of how data can be managed and manipulated within the context of airline management.