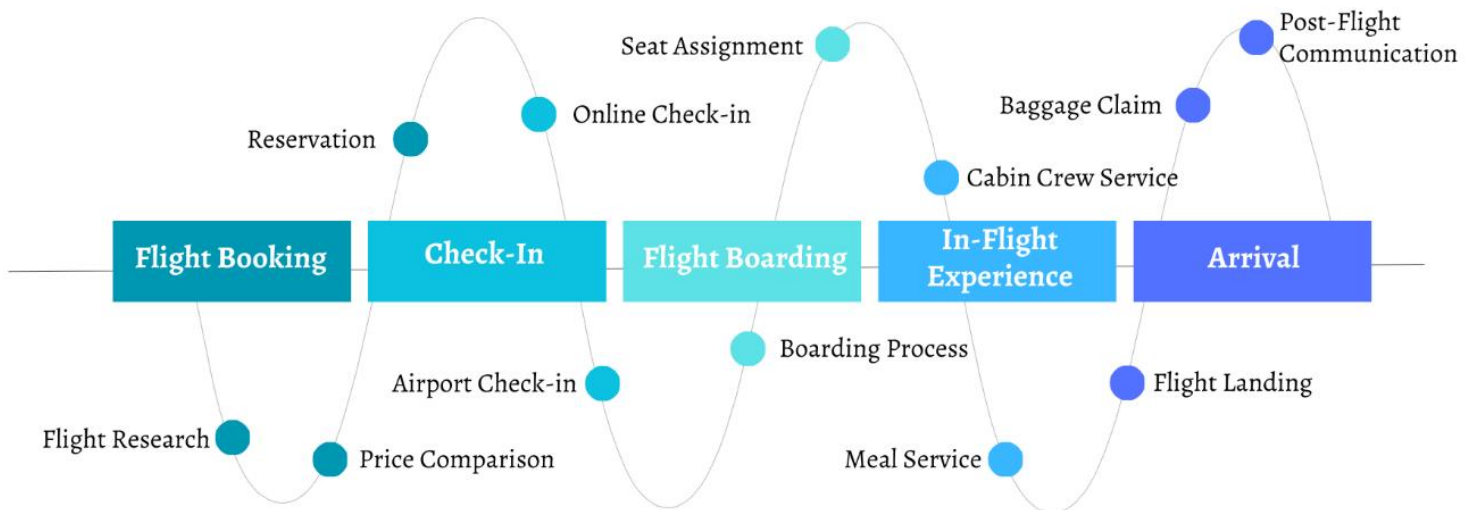


REQUIREMENT ANALYSIS PHASE

Date	25-06-2025
Team Id	LTVIP2025TMID31533
Project Name	AirLine Management System
College Name	Ideal Institute Of Technology

➤ Customer Journey Map



Customer Journey Map

Airlines Management System



Awareness

- Learn about airline travel through ads social media



Consideration

- Compares airlines, checks schedules & fares
- Confusing if the process is smooth



Pre-Flight

- Enters airport, check baggage, boarding flight
- Nervous but excited



Onboarding

- Enters airport, check baggage, board flight
- Airport kiosks, crew assistance



In-Flight

- Receive service, engaging with crew or IFE
- Seeks comfort and service



Post-Flight

- Receive service, engaging w entertainment options
- Seeks comfort and service



Post-Flight Loyalty & Support

- Collect baggage, exit airport
- Tired & reflective
- Tired & ineffective
- Delayed baggage
- No feedback channel
- Feedback survey
- Loyalty points reward
- Give feedback

➤ Solution Requirements

Functional Requirements:

Flight Management:

- **Flight Search:** Allow users to search for flights based on origin, destination, date, and number of passengers.
- **Flight Information Display:** Display detailed flight information, including schedules, available seats, aircraft type, and pricing.
- **Flight Booking:** Enable users to book flights, select seats, and make payments.
- **Flight Cancellation:** Allow users to cancel their bookings and process refunds.
- **Flight Modification:** Allow users to modify existing bookings (e.g., date, time, destination).

User Management:

- **User Registration:** Enable users to create accounts and manage their profiles.
- **Login/Authentication:** Securely authenticate users and manage access to different features.
- **Profile Management:** Allow users to update their personal information, contact details, and payment methods

Admin Panel:

- **Flight Management:** Allow administrators to add, modify, and remove flight details, including schedules, routes, and pricing.
- **User Management:** Allow administrators to manage user accounts, view booking details, and handle cancellations.

✚ **Payment Processing:**

- **Secure Payment Gateway:** Integrate with secure payment gateways to process online transactions.
- **Payment History:** Allow users to view their payment history and transaction details.

✚ **Real-time Updates:**

- **Flight Status Updates:** Provide real-time updates on flight delays, cancellations, gate changes, and other relevant information.
- **Notifications:** Send notifications to users via email or SMS regarding flight status changes.

Non-Functional Requirements:

✚ **Security:**

- **Data Protection:** Ensure the confidentiality, integrity, and availability of sensitive user data, including personal information and payment details.
- **Secure Transactions:** Implement secure payment processing mechanisms to protect against fraud and unauthorized access.

✚ **Performance:**

- **Response Time:** Ensure that the system responds quickly to user requests and transactions, especially during peak hours.
- **Scalability:** Design the system to handle a large number of users, flights, and transactions without performance degradation.

✚ **User Experience:**

- **User-Friendly Interface:** Provide a simple, intuitive, and easy-to-navigate interface for all users (customers and administrators).

- **Accessibility:** Ensure the system is accessible to users with disabilities, following accessibility guidelines.

✚ **Reliability:**

- **System Availability:** Ensure the system is available 24/7 with minimal downtime.
- **Error Handling:** Implement robust error handling mechanisms to prevent system crashes and data loss.

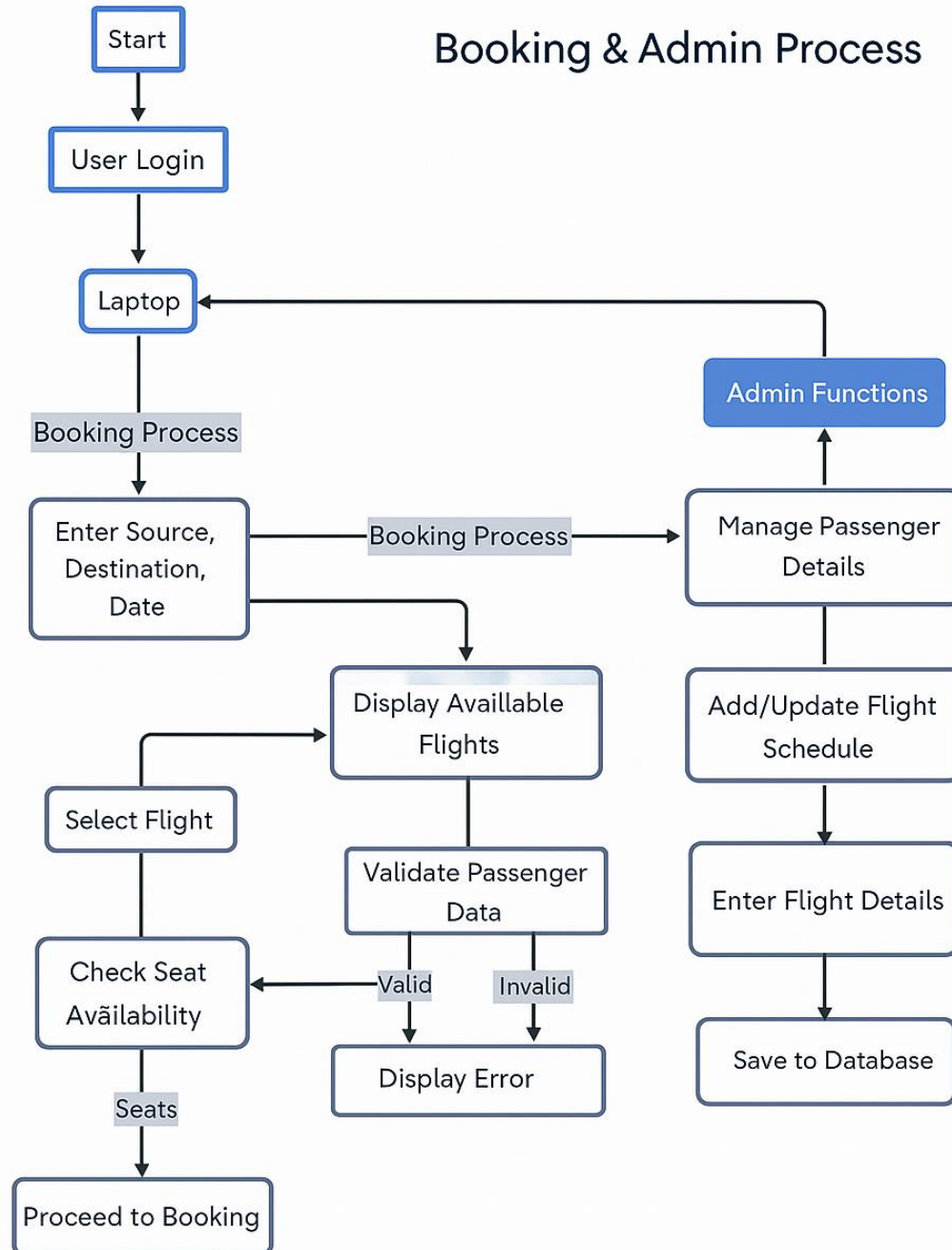
✚ **Interoperability:**

- **Integration with Other Systems:** Integrate with other systems used by the airline, such as reservation systems, baggage handling systems, and airport systems.

✚ **Maintainability:**

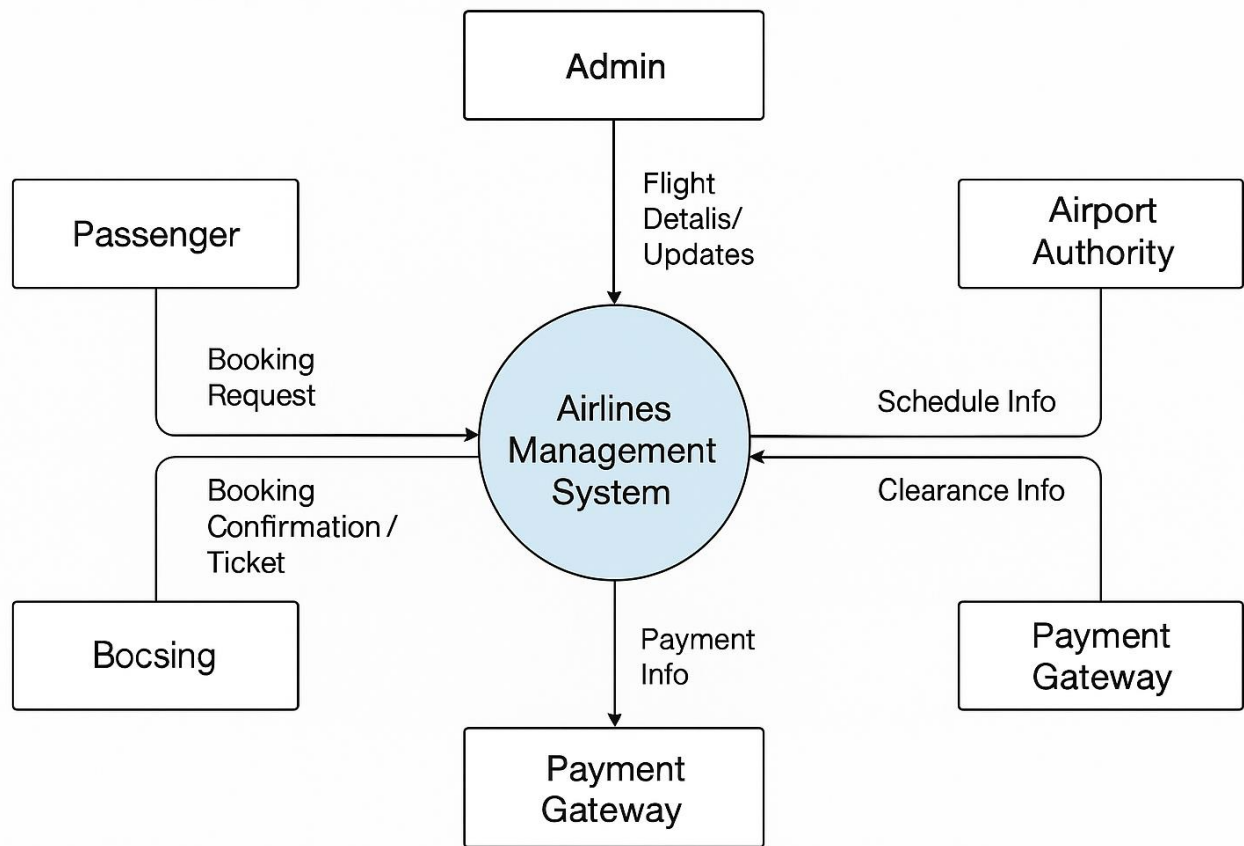
- **Code Structure:** Write clean, well-documented, and maintainable code to facilitate future updates and modifications.
- **Modularity:** Design the system with modular components to allow for easy updates and replacements.

Airlines Management System



Level 1 DFD – Full Workflow of Airline Booking & Administration

Data Flow Diagram (DFD) - User Authentication Module for Airline Management System



➤ User Stories

User Role	User Story	Goal
Passenger/User	As a passenger, I want to log in to the system	So that I can manage my flight bookings
Passenger/User	As a passenger, I want to enter source, destination, and date	So that I can search for available flights
Passenger/User	As a passenger, I want to select a flight and check seat availability	So that I can book a seat if available
Passenger/User	As a passenger, I want to enter my personal details and book a seat	So that I can complete the reservation process
Passenger/User	As a passenger, I want to make a payment	So that my booking can be confirmed
Passenger/User	As a passenger, I want to receive a confirmation and ticket	So that I can travel with proof of booking
Passenger/User	As a passenger, I want to view my existing bookings	So that I can track or manage my flights
Passenger/User	As a passenger, I want to cancel a booking and get a refund	So that I can manage unexpected changes in my plans
Admin	As an admin, I want to log in to the system	So that I can access all admin functions

Admin	As an admin, I want to add or update passenger info	So that I can maintain accurate passenger records
Admin	As an admin, I want to validate passenger data	So that invalid or incorrect data is rejected
Admin	As an admin, I want to add or update flight schedules	So that passengers have updated options to book
Admin	As an admin, I want to update airline details	So that the system reflects current airline info
Admin	As an admin, I want to generate reports by selecting report types	So that I can analyze booking and operations data
Admin	As an admin, I want to cancel bookings and initiate refunds	So that user issues can be resolved quickly
System/Database	As a system, I want to validate user login credentials	So that only authorized users can log in
System/Database	As a system, I want to show errors for invalid inputs	So that users/admins know what to fix
System/Database	As a system, I want to store and update booking, flight, and passenger info in the database	So that data is consistent and retrievable
System/Database	As a system, I want to display whether seats are available or not	So that users can choose another flight if needed
System/Database	As a system, I want to generate booking IDs and tickets	So that passengers receive confirmation after payment

➤ Technology Stack (Architecture & Stack)



❖ Technical Architecture of the Airline Management System

The technical architecture shown above represents the layered design of the **Salesforce-powered Airline Management System** . It is built to support a wide range of airline operations including flight bookings, passenger management, notifications, and admin workflows.

Technology Stack Overview

Component	Technology Used	Purpose
Frontend (UI) Frontend Framework	HTML5, CSS3, JavaScript	Creating the user interface
	React.js (or Angular / plain JS if beginner)	SPA behavior and UI rendering
Backend	Node.js with Express.js (or Java / Python Django / Flask)	Handles logic, APIs, and middleware
Authentication	JSON Web Tokens (JWT) / Session Auth	Secure login and token-based access control
Database	MySQL / PostgreSQL / MongoDB	Store flight, user, booking, and payment info
Server	Express Server / Tomcat / Apache	Serves client requests
APIs (Optional)	RESTful APIs	For accessing and manipulating data
Payment Gateway	Razorpay / Stripe / PayPal (Simulation or Sandbox mode)	Handles payments and refunds
Reporting Tool	Chart.js / Google Charts (optional)	Admin report generation
Hosting/Deployment	GitHub Pages / Netlify (Frontend), Render / Vercel / AWS	Hosting and deploying app
Version Control	Git + GitHub	Code versioning and collaboration

