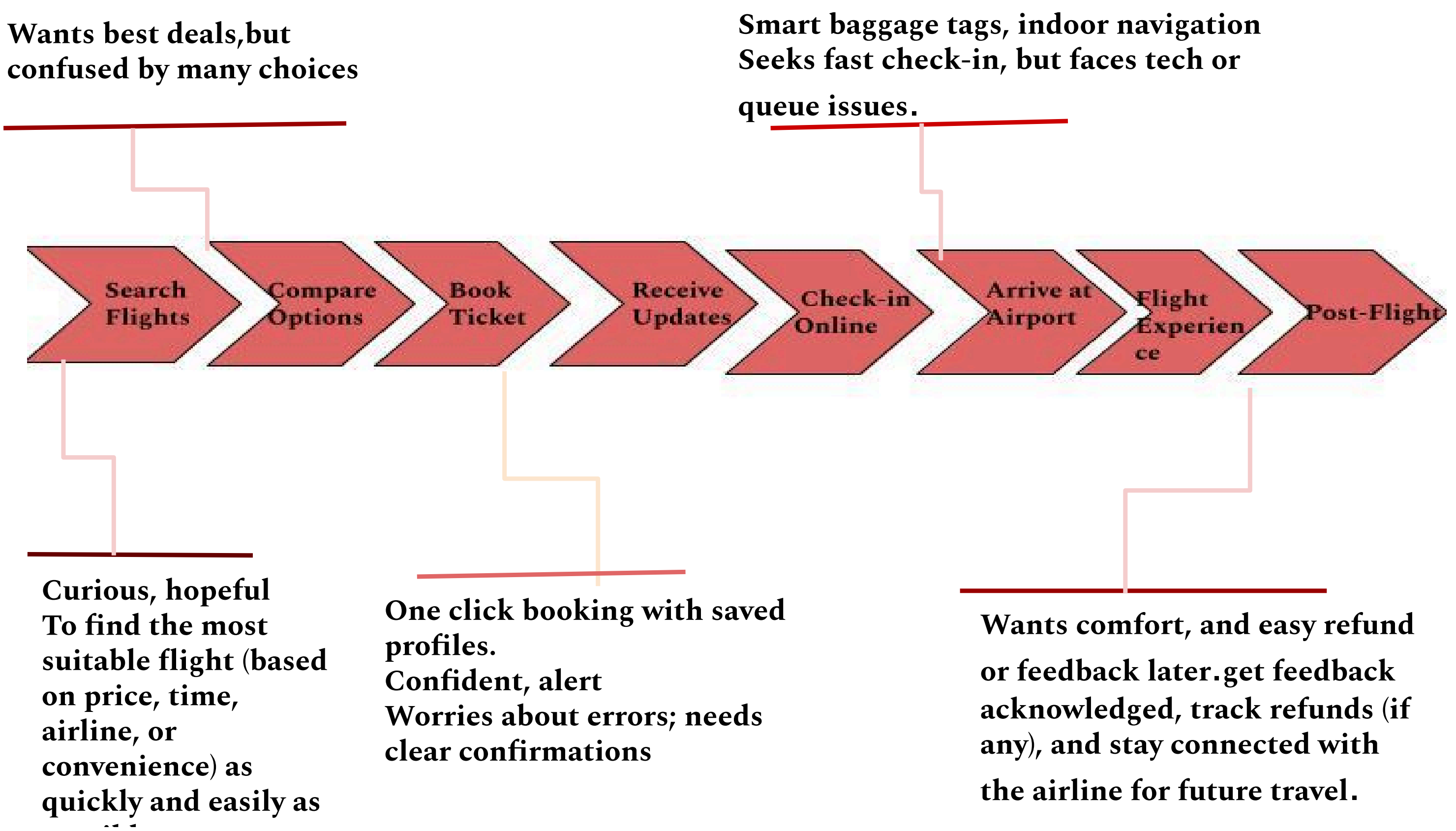
Requirement Analysis phase

Date	25-06-2025
Team Id	LTVIP2025TMID29760
Project Name	AirLine Management System
College Name	Ideal Institute Of Technology

Step 1: Customer journey map



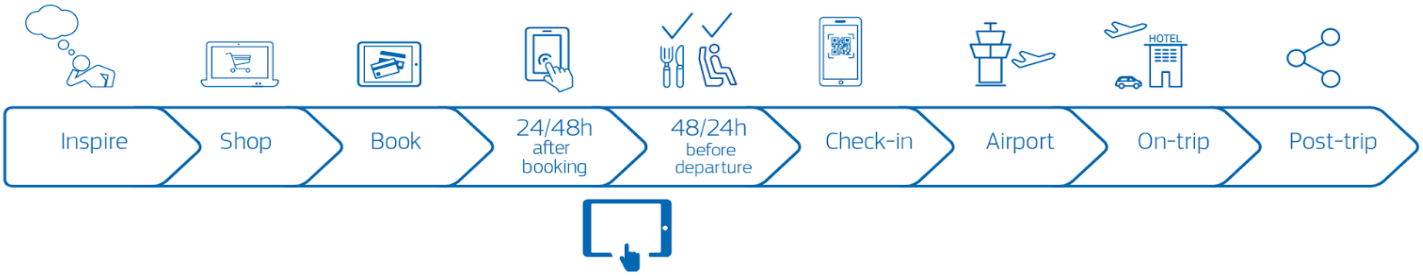
Wants best deals,but confused by many choices

Smart baggage tags, indoor navigation
Seeks fast check-in, but faces tech or queue issues.

Curious, hopeful
To find the most suitable flight (based on price, time, airline, or convenience) as quickly and easily as

One click booking with saved profiles.
Confident, alert
Worries about errors; needs clear confirmations

Wants comfort, and easy refund or feedback later.get feedback acknowledged, track refunds (if any), and stay connected with the airline for future travel.



Solution Requirements

Functional Requirements

These define the core features and operations the system must support:

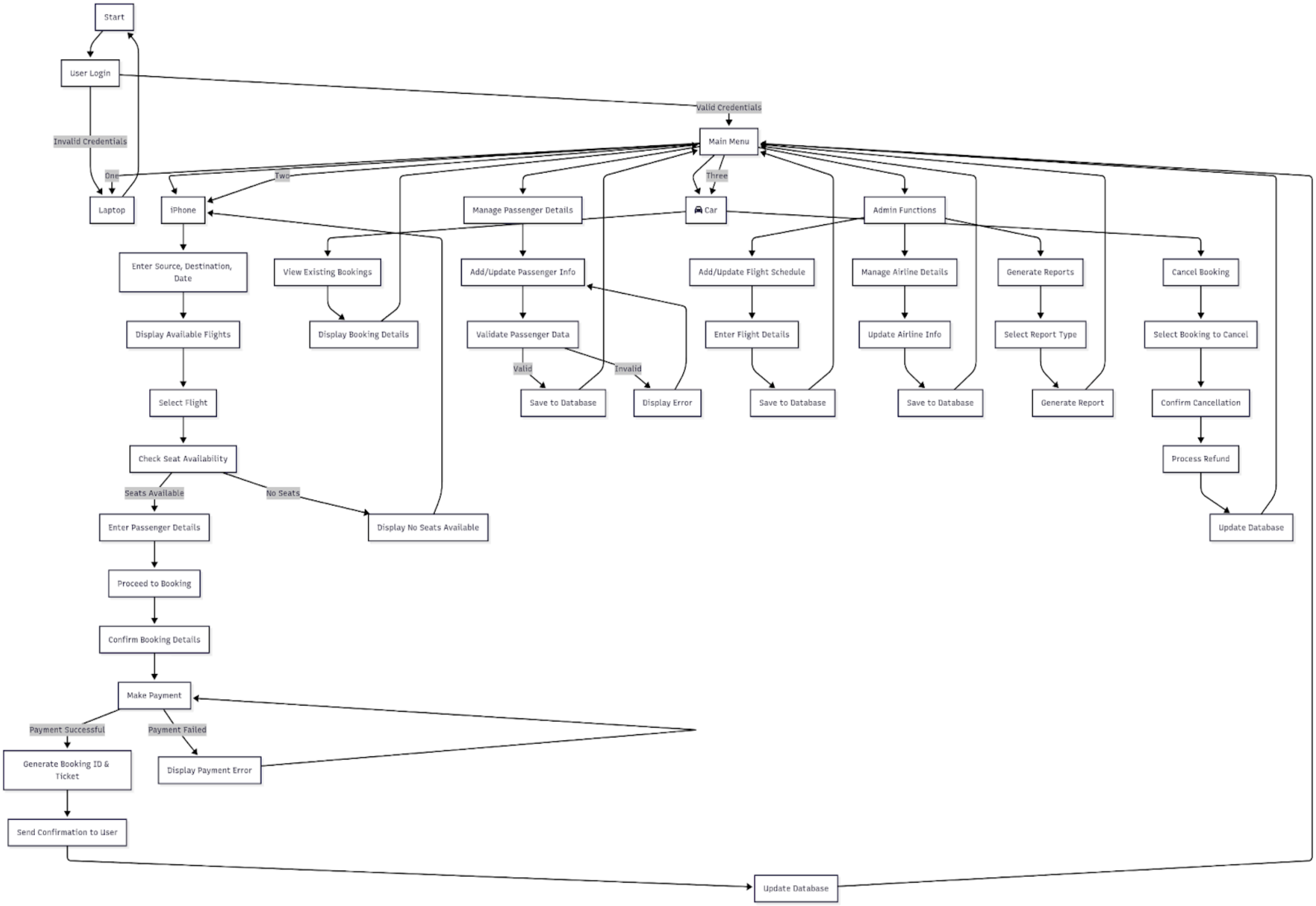
- ➢ The system must allow users to search for available flights based on source, destination, and date.
- ➢ It should enable comparison of flights based on price, duration, and airline.
- ➢ Users should be able to book tickets and receive booking confirmations via email/SMS.
- ➢ The system must provide real-time flight status updates (e.g., delays, gate changes).
- ➢ Users must be able to check in online and choose their seat preferences.
- ➢ The admin panel should allow staff to manage flight schedules, pricing, and bookings.
- ➢ A feedback module should collect user reviews after the journey.
- ➢ Refund and cancellation requests must be handled efficiently through the system.

Non-Functional Requirements

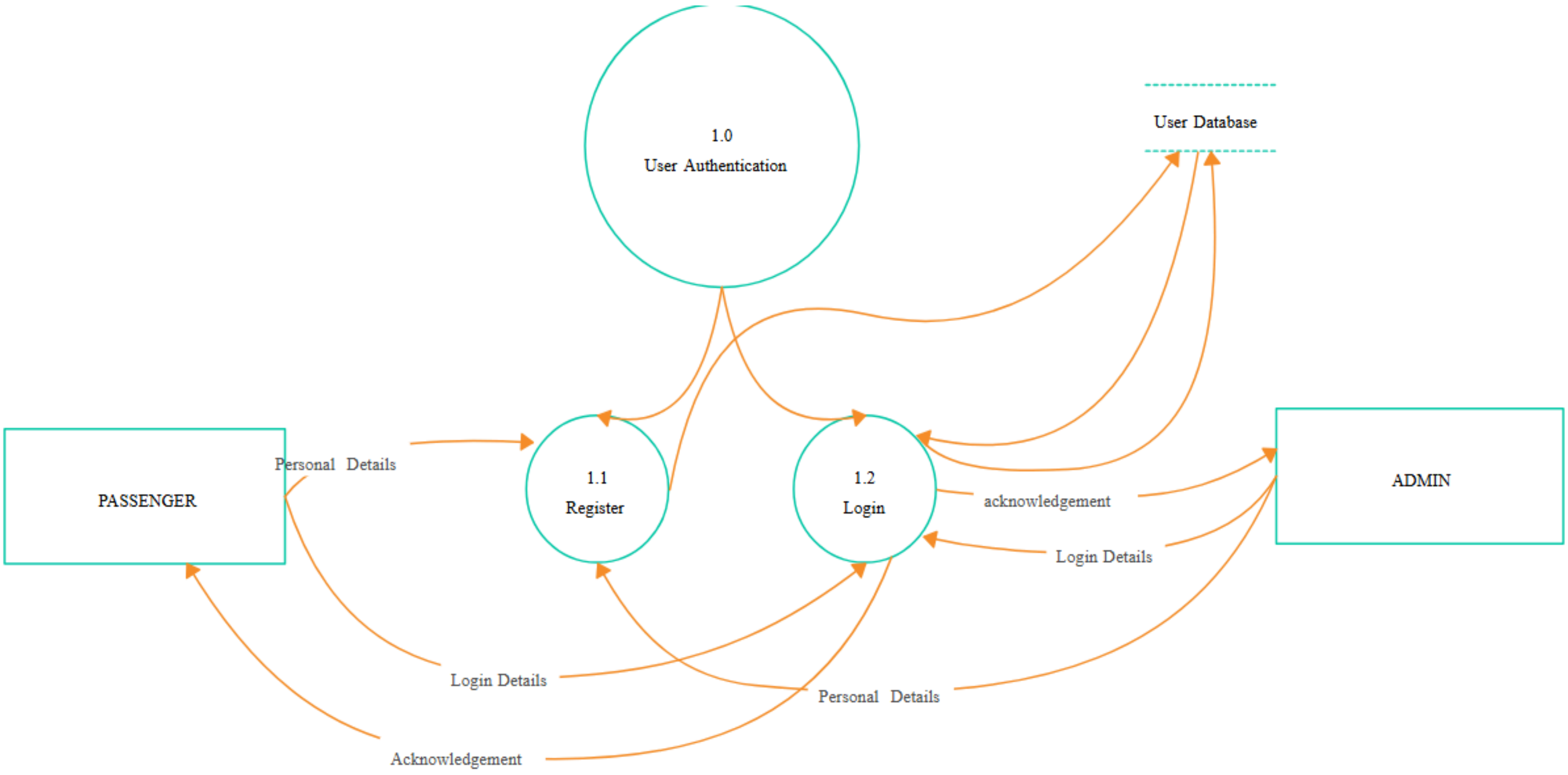
Sno	**Non-Functional Requirements**	**Description**
1	Scalability	The system should support a growing number of users and data without performance loss.
2	Usability	The interface must be user-friendly and accessible for both mobile and desktop users.
3	Security	User data must be protected through secure login, encryption, and authentication protocols.
4	Reliability	The system should function without failure under expected workloads.
5	Performance	Page load time should not exceed 3 seconds for any major operation.
6	Availability	The service should have at least 99.9% uptime.

Data Flow Diagrams:

Level 1 DFD – Full Workflow of Airline Booking & Administration



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



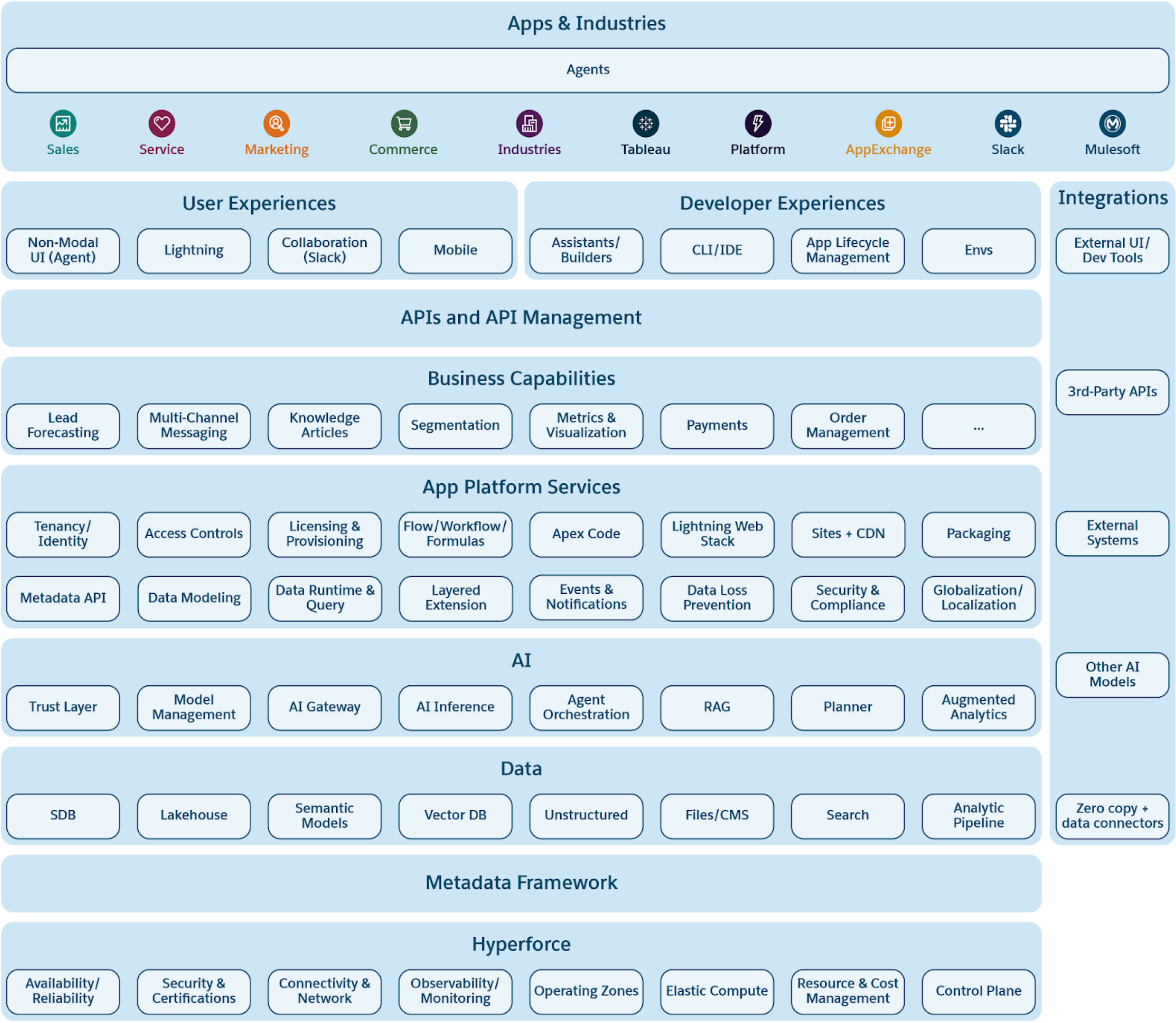
✅ User Stories

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)	HTML5, CSS3, JavaScript	Creating the user interface
Frontend Framework	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