

Project: Airline Management System

Industry: Aviation / Travel

Project Type: B2C Airline Management CRM implementation for booking & operations

Target Users: Passengers, Airline Staff, Administrators

1.1 Problem Statement

Airlines face challenges in managing reservations, flight schedules, staff coordination, and passenger services efficiently. Existing manual or semi-digital systems cause delays, double bookings, poor customer experience, and lack of centralized data. This Airline Management System aims to streamline bookings, automate flight operations, and provide a centralized platform for both staff and passengers.

1.2 Use Cases

- Passenger Booking & Ticketing – Book, cancel, reschedule flights online.
- Flight Scheduling – Manage arrivals, departures, and delays.
- Crew Management – Assign pilots, crew, and staff per flight.
- Check-in & Boarding – Generate boarding passes, verify passengers.
- Payment & Refunds – Secure transactions and automated refunds.
- Reporting – Revenue tracking, passenger flow analysis.

Phase 1 — Problem Understanding & Industry Analysis

- Requirement gathering: Passengers want quick booking, staff want efficient scheduling, admin wants reporting.
- Stakeholder Analysis: Passengers, Airline Staff, Admins.
- Business process mapping: From booking → boarding → flight operations.
- Deliverables: Problem statement, user stories.

Phase 2 — System Setup & Configuration

- Setup system architecture for airline operations.
- Define user roles: Admin, Passenger, Staff.
- Set timezone, currency, and localization.
- Deliverables: Configured system ready for operations.

Phase 3 — Data Modeling & Relationships

- Design entities: Flights, Passengers, Staff, Tickets, Payments.
- Relationships: Flight ↔ Passenger (via Ticket), Staff ↔ Flight.
- Deliverables: ER diagram, schema design.

Phase 4 — Process Automation

- Automate ticket confirmation emails.
- Automate flight delay notifications.
- Deliverables: Automated workflows and notifications.

Phase 5 — Backend Programming

- Implement seat allocation logic.

- Handle overbooking and cancellations.
- Batch jobs for daily reports.
- Deliverables: Codebase with test coverage.

Phase 6 — User Interface Development

- Passenger Portal – Search flights, book tickets, view status.
- Staff Portal – Manage flights, crew, check-ins.
- Deliverables: Responsive web UI with dashboards.

Phase 7 — Integration & External Services

- Payment Gateway Integration for ticket purchase.
- Integration with third-party flight tracking APIs.
- Deliverables: Integrated and tested APIs.

Phase 8 — Data Management & Deployment

- Import airline data: schedules, staff, flight details.
- Ensure backup and recovery system.
- Deployment with version control.
- Deliverables: Production-ready deployment.

Phase 9 — Reporting, Dashboards & Security

- Passenger booking trends report.
- Revenue per route analysis.
- Security checks: data encryption, role-based access.
- Deliverables: Reports, dashboards, security audit.

Phase 10 — Final Presentation & Demo Day

- Demo flow: Passenger books → Check-in → Flight assignment.
- Presentation: Problem → Solution → Impact.
- Deliverables: Demo, presentation slides, user manual.