

Flight Finder – MERN Stack Project Documentation

1. Problem Statement

Traditional flight booking systems are often outdated, slow, and not user-friendly. Users face difficulties finding, booking, and managing their flights efficiently. This project solves that by creating a modern, full-stack web application using the MERN stack to simplify the entire flight booking process.

2. Requirements

- A user interface for:
 - Registering and logging in
 - Searching flights
 - Booking tickets
 - Admin functionalities:
 - Adding or removing flights
 - Viewing all bookings
 - JWT-based Authentication
 - REST API using Node.js and Express
 - MongoDB integration for user/booking data
 - Responsive UI with React and Bootstrap
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3. Sprint Breakdown

Sprint	Duration	Tasks
Sprint 1	Week 1	Planning, requirement analysis, mockups
Sprint 2	Week 2	Frontend setup: Login/Register, Search
Sprint 3	Week 3	Backend APIs for auth & bookings
Sprint 4	Week 4	MongoDB integration and connection
Sprint 5	Week 5	Admin dashboard, CRUD operations
Sprint 6	Week 6	Testing, debugging, final deployment

4. Analysis

We analyzed how users interact with real flight booking systems and ensured: - Fast and secure login - Smooth flow from search to booking - Simple admin control over flights

MongoDB was chosen for flexibility and scalability. Admin dashboard was kept minimal for easy operation.

5. Implementation

- **Frontend:** React with reusable components
 - **Backend:** Node.js + Express REST API
 - **Database:** MongoDB + Mongoose
 - **Authentication:** JWT tokens, protected routes
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6. Debugging & Testing

- Manual API testing using **Postman**
 - Form validation in React
 - Backend error handling using try/catch
 - Manual tests:
 - Invalid login
 - Duplicate bookings
 - Admin route security
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7. Conclusion

This is a complete MERN stack application built for **SmartInternz Internship**. It demonstrates both frontend and backend integration, clean UI/UX, admin control, and secure login.

 Successfully fulfills SmartInternz requirements.

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