FINAL REPORT TEMPLATE

1. INTRODUCTION

1.1 Project Overview FlightFinder (MD Flights) is a modern digital platform designed to revolutionize the flight booking experience. The application simplifies flight discovery, exploration, and ticket reservation for travelers while offering robust administrative features for operators. It supports real-time data handling using a MERN stack (MongoDB, Express.js, React.js, Node.js), ensuring a seamless and efficient user journey.

1.2 Purpose To provide a scalable, efficient, and user-friendly application that eliminates traditional flight booking complexities. MD Flights ensures a quick, transparent, and convenient reservation process for users while offering streamlined management tools for administrators.

2. IDEATION PHASE

2.1 Problem Statement Traditional flight search and booking platforms often suffer from poor performance, cluttered interfaces, and inadequate filtering options, causing user frustration and inefficiencies in decision-making.

2.2 Empathy Map Canvas Think & Feel: "I want to book flights quickly and confidently." Hear: "It's easy to find the best flight on MD Flights!" See: A clean UI, clear booking history, and detailed flight info Say & Do: Search flights, check availability, book instantly, view previous bookings

2.3 Brainstorming - Comprehensive flight listings - Admin panel for flight management - Instant booking confirmation - Flight search with origin/destination/date filters - Booking history tracking - Mobile and web accessibility

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map Discover → Register/Login → Search Flights → Select & Book → Confirmation & Booking History

3.2 Solution Requirement Functional: User registration/login, flight search, booking interface, booking summary page, admin dashboard Non-functional: Security, responsiveness, high availability, scalable backend

3.3 Data Flow Diagram (DFD) Level 0: User → Web App → API Server → MongoDB Level 1: Includes modules for login, flight search, booking handling, admin controls

3.4 Technology Stack Frontend: React.js Backend: Node.js + Express.js Database: MongoDB Others: GitHub, Vercel, MongoDB Compass, Postman

4. PROJECT DESIGN

4.1 Problem Solution Fit By combining intuitive design and powerful search capabilities, MD Flights reduces booking time, simplifies decisions, and improves the overall travel planning experience for users and administrators.

4.2 Proposed Solution MD Flights allows users to search flights by parameters, book instantly, and manage bookings. Admins can manage flight listings, monitor bookings, and add new flight services using a dedicated dashboard.

4.3 Solution Architecture Frontend (React.js) → Backend (Express.js APIs) → MongoDB Database Includes separate authentication and UI flows for users and admins.

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Benchmark 1: Setup (Node.js, MongoDB, React, Git)

Benchmark 2: Backend APIs and database models

Benchmark 3: Frontend development and integration

Benchmark 4: Testing and final deployment

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Booking confirmation within seconds

Search result loading under 1 second

Booking history loading instantly

Admin actions reflected in real-time

7. RESULTS

7.1 Output Screenshots

Landing Page

User Registration/Login

Flight Search and Listing

Booking Form

Booking Confirmation Page

Admin Dashboard (Add Flights/View Bookings)

8. ADVANTAGES & DISADVANTAGES

Advantages: - Real-time, efficient booking system - User-friendly interface - Admin and user separation ensures clarity - Scalable design using MERN stack

Disadvantages: - Requires internet connection - Dependent on MongoDB Atlas for hosting - No inbuilt payment system (yet)

9. CONCLUSION

MD Flights successfully streamlines the flight booking process, offering both users and admins a simplified, secure, and responsive experience. The integration of real-time data handling and a modular design enhances both user satisfaction and administrative control.

10. FUTURE SCOPE

- Integration of payment gateway

- Real-time seat selection and seat map

- AI-based flight suggestions

- Multilingual support

- Mobile app version

11. APPENDIX

- Source Code: https://github.com/MohdAliAkmalBaig/flight-finder

- Project Demo Video: https://drive.google.com/file/d/1y_abSW_6rNtRu0KfRTJUKClN-MpEnEAd/view?usp=sharing

- Live Link: https://flight-finder-2g25.vercel.app/