

Airline Booking System - Phase 1

Technical Specifications Document (TSD):

1. Title Section

Field	: Specification
Project Name	: Airline Booking System
Document Title	: Technical Specifications Document (TSD) - Phase 1: Core Search Engine
Version	: 1.0.0
Date	: October 14, 2025
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Repository URL:	: https://github.com/blink1197/airline-booking-system

2. Table of Contents

The document should cover the following content sections:

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3. Features and Scope (Phase 1)

This phase focuses only on the Core Search and Display as the Minimum Viable Product (MVP).

Feature Area	Description	Scope (Phase 1)
Flight Search	Core logic for finding flights based on criteria.	IN: One-way flights, Origin, Destination, Date. Round-trip search is excluded.
Results Display	Presenting the returned flight data to the user.	IN: Dynamic, scrollable cards displaying Price, Times, Duration, Airline, and basic sorting/filtering.

Architecture	The front-end application structure.	IN: Mobile-Responsive Single Page Web Application (SPA).
Booking/Account	User accounts and transaction management.	OUT: User Login/Logout, User Profile, Booking/Payment workflow (See Excluded Features).

4. Functional Requirements (FR)

The technical specifications should cover both Frontend and Backend requirements.

4.1. FR - Frontend (User Interface)

ID	Requirement	Description
FR-FE-01	Search Input	Display fields for Origin, Destination, Departure Date, and a Search Button on the landing screen.
FR-FE-02	Results Display Cards	Display flight results in dynamic cards showing route, times, duration, and formatted price. The element must show a cut element at the bottom, implying scrollable content.
FR-FE-03	Search Options Display	Display buttons for 'Round-trip' and 'One-way,' but ensure only 'One-way' search is functional.
FR-FE-04	Utility Footer	Must include a functional Footer element that implies contact details.
FR-FE-05	Navigation Menu	Must include a Hamburger button on the navbar.

4.2. FR - Backend (Core Logic & Data)

ID	Requirement	Description
FR-BE-01	Search API Endpoint	Expose a stable REST API endpoint (/v1/flights/search) to process one-way search requests.
FR-BE-02	Data Aggregation	Calculate total flight duration and format the price based on flight data.

FR-BE-03	Airport Data Service	Provide an API endpoint (/v1/airports) for the frontend's airport auto-complete feature.
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4.3. FR - Excluded Features (Phase 1 Boundary)

The following pages and features are explicitly excluded from Phase 1:

- Login/Logout
- User Profile
- Booking Confirmation/Itinerary details
- Manage Booking, Check-in, Flight Status
- Round-Trip Search

5. Non-Functional Requirements (NFR)

ID	Category	Requirement	Description
NFR-P-01	Performance	Search Latency	< 2 seconds (for 95% of searches)
NFR-P-02	Architecture	Web Application Type	Application must be a Single Page Web Application (SPA).
NFR-U-01	Usability	Device Compatibility	Application must be fully mobile-responsive (including mobile and tablet views).
NFR-S-01	Security	Input Validation	Implement comprehensive input sanitation and validation on all API parameters.

6. External Interface Requirements

This includes descriptions of user interfaces, APIs, and interactions with other systems.

- Design Inspiration: The user experience should draw inspiration from Airline Booking applications such as Cebu Pacific, Philippine Airlines, and Singapore Airlines.

7. Visual Mock-up (Figma) and ERD

The document must include a Visual Mock-up and an ERD.

7.1. Figma Mock-up Requirements

- Tool
Create a visual mock-up using Figma. You can use the Figma Community for flight booking app templates for guidance.
- Views
Must include mobile and tablet views.
- Style Guide
The Figma file must include a Style Guide component covering Typography, Color Palette, and Branding.
- Access
The link must be Public to allow future employers to view the project.

7.2. TSD Inclusion

- Public Figma Link: [\[Link\]](#)
- ERD Link/Image: [\[Link\]](#)

8. Data Requirements

The document must include data models, database schemas, and an ERD.

8.1. Entity-Relationship Diagram (ERD)

The ERD must be created based on your specifications to illustrate the relationship of data.

Entity (Phase 1 Relevant)	airlineId	Key Attributes
Airline_info	Primary Key (PK)	name, logo
Flight_details	flightId	fromLocation, toLocation, departureDate, price, seatsAvailable

*** Note: The full provided ERD also includes User_info, Booking_details, Passenger_details, Ticket_info, and Payment_details, but these are deferred for Phase 1.***

9. Glossary

Definitions of terms and acronyms used in the document.

| Term/Acronym | Definition |

| TSD | Technical Specifications Document. |

| MVP | Minimum Viable Product. |

| ERD | Entity-Relationship Diagram. |

| SPA | Single Page Web Application. |

10. Appendices

[data to be included]

10.1. Revision History

[data to be included]

10.2. GitHub Repository & Collaboration Guidelines

- Repository: Create a new public GitHub repo called airline-booking-system.
 - Document Format: TSD must be a markdown file in the repository.
 - Collaboration: The Assigned Group Leader should add members via email invitation and must review updates before merging.
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10.3. Project Management (Trello Task Board)

- Deliverable: Create a Trello Task Board (which includes the instructor) to disseminate and assign task cards.
 - Task Format: Task cards should follow the naming convention: FEAT000-<feature>.
 - Trello Link: [\[Link\]](#)
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10.4. Project Mechanics and Group Consultation

- Duration: Group of 3-5 Bootcampers for a project lasting at least 2 weeks.
- Consultation: Groups must schedule at least three 30-minute consultation sessions (3 days prior) with the instructors/consultants during available work hours. The Group Leader schedules the consultation using the Google Calendar App.
- Check-in: Instructors will check-in regularly via a group chat (created by the instructor).