Software Requirements Specification

For

Travel Booking Platform

Version 1.0 approved

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Abstract

The Travel Booking Platform project focuses on designing and developing a scalable, secure, and user-friendly digital system that enables users to plan and book travel services efficiently using Agile methodology. In today's fast-paced digital environment, travelers expect quick access to flights, hotels, transport services, and travel packages through a single platform. Traditional booking methods and fragmented systems often result in delays, limited options, and poor user experience. This project addresses these challenges by providing an integrated online travel management solution.

The proposed system allows users to search and compare travel options, book flights and hotels, manage itineraries, make secure online payments, and receive real-time booking confirmations. The platform also supports user registration, profile management, booking history, and cancellation features. From a business perspective, the system provides an administrative dashboard for managing travel listings, pricing, availability, user accounts, and reports. Role-based access control ensures secure interaction for customers, agents, and administrators.

Agile methodology plays a key role in the development of this platform by enabling iterative and incremental delivery. The project is divided into short sprints, with each sprint delivering functional features such as search modules, booking workflow, payment integration, and notification services. Continuous testing and stakeholder feedback during each sprint help improve system quality, reduce risks, and allow changes to be incorporated efficiently without affecting the entire system.

The Travel Booking Platform is designed with scalability, performance, and security as primary non-functional requirements. Secure authentication, encrypted payment processing, and reliable data storage mechanisms are implemented to protect user and transaction data. The system architecture supports future enhancements such as mobile application integration, dynamic pricing, AI-based travel recommendations, and third-party API integration. Overall, this project demonstrates the effective use of Agile methodology to develop a modern, enterprise-ready travel booking platform that enhances user experience, improves operational efficiency, and supports continuous business growth.

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2. Introduction

2.1 Introduction

The Travel Booking Platform project aims to develop an online system that allows users to search, compare, and book travel services such as flights, hotels, and travel packages through a single digital platform. With the rapid growth of online travel services, customers now expect fast, reliable, and convenient booking experiences. Traditional manual booking processes and disconnected travel systems often result in delays, limited options, and low customer satisfaction.

This project provides a centralized and automated solution that simplifies travel planning for users and improves operational efficiency for travel service providers. Agile methodology is adopted to ensure flexibility, faster feature delivery, and continuous improvement throughout the development lifecycle.

2.2 Problem Identification

Traditional travel booking systems face several challenges due to manual operations and lack of integration. Users are often required to visit multiple platforms to book different travel services, which leads to confusion and time wastage. Manual confirmation processes cause delays, and the absence of real-time availability and pricing updates increases the chances of booking errors. These issues collectively result in a poor customer experience.

For example, a user may need to visit separate websites to book flights and hotels, making the overall travel planning process inefficient and inconvenient.

2.3 Need of the Project

There is a strong need for an integrated travel booking platform that provides convenience, accuracy, and real-time information. A centralized system enables users to plan complete trips efficiently while allowing businesses to manage travel services digitally. Such a platform reduces manual effort, minimizes errors, and ensures secure online transactions.

For instance, a traveler can book flights, hotels, and local transport in a single session using one platform, saving time and effort.

2.4 Project Scheduling

The project follows the Agile development approach, where the overall work is divided into short development cycles known as sprints. Each sprint focuses on delivering specific features such as search functionality, booking workflow, or payment integration. Regular sprint reviews, testing, and feedback ensure timely delivery, improved quality, and adaptability to changing requirements.

2.5 Objectives

The main objectives of the Travel Booking Platform project are to provide a unified digital travel booking system, improve user experience through fast and simple booking processes,

ensure secure and reliable online payments, support scalability for growing users and services, and enable continuous improvement through Agile methodology.

3. Software Requirement Specification (SRS)

3.1 Purpose

The Software Requirement Specification (SRS) document defines the complete functional and non-functional requirements of the Travel Booking Platform. The purpose of this document is to provide a clear and common understanding of system requirements for developers, testers, and stakeholders. It serves as a reference throughout the software development life cycle and helps in system design, implementation, testing, and maintenance. The SRS also acts as a baseline for future enhancements and modifications. In Agile development, this document is refined continuously during sprint planning and reviews.

3.2 Scope

The Travel Booking Platform is a web-based application that enables users to search, compare, and book travel services such as flights, hotels, and travel packages. The system supports multiple user roles through role-based access control.

The scope of the system includes user registration and secure login, searching and comparison of travel options, booking and cancellation of services, secure online payment processing, booking history management, and notification services. Administrative functionalities include managing travel listings, pricing, availability, users, and reports. The system is designed to be scalable and flexible for future integrations with third-party travel APIs and mobile platforms.

3.3 Hardware Requirement / Software Requirement

Hardware Requirements:

Component	Specification
Processor	Intel i3 or higher
RAM	Minimum 4 GB
Storage	100 GB
Internet	Stable broadband connection

These hardware requirements ensure smooth execution of the application and support concurrent user access.

Software Requirements:

Software Component	Description
Operating System	Windows / Linux
Frontend Technology	HTML, CSS, JavaScript
Backend Technology	Java / Python / PHP
Database	MySQL
Web Browser	Google Chrome / Mozilla Firefox

These software requirements support secure data handling, responsive design, and reliable system performance.

3.4 Tools

Various development and management tools are used to ensure quality and efficiency during the project lifecycle.

Tool Category	Tool Name
IDE	Visual Studio Code / Eclipse
Database Tool	MySQL Workbench
Version Control	Git
Testing Tool	Manual Testing / Selenium
Documentation	MS Word / Canva

These tools help in maintaining code quality, tracking changes, effective collaboration, and proper documentation.

3.5 Software Process Model

The Travel Booking Platform follows the Agile Software Development Model. The project is divided into short development cycles known as sprints. Each sprint delivers a functional module such as user authentication, search functionality, booking workflow, or payment integration. Continuous testing, integration, and stakeholder feedback are incorporated at the

end of each sprint. This model ensures flexibility, early defect detection, faster delivery, and continuous improvement of the system.

4. System Design

System Design defines the overall structure of the Travel Booking Platform and explains how different system components interact with each other. It provides a clear blueprint for developers to implement the system efficiently while ensuring scalability, performance, and security. A well-defined system design helps in reducing development errors and improves maintainability.

The system design phase focuses on identifying data structures, system processes, and user interactions. It ensures that all functional and non-functional requirements are properly translated into technical solutions before implementation begins.

4.1 Data Dictionary

The Data Dictionary describes all important data elements used in the Travel Booking Platform along with their meaning and purpose. It acts as a reference document for developers and database administrators and ensures consistency in database design and data usage across the system.

Key Data Elements

- **User_ID** – Unique identifier for each user
- **User_Name** – Registered name of the user
- **Booking_ID** – Unique reference number for each booking
- **Flight_ID** – Identifier for flight details
- **Hotel_ID** – Identifier for hotel details
- **Travel_Date** – Date of travel
- **Payment_Status** – Status of payment confirmation
- **User_Role** – Role of the user (Admin / Customer / Agent)

The data dictionary helps in maintaining data accuracy, avoiding redundancy, and supporting future enhancements.

4.2 Entity Relationship (ER) Diagram

The Entity Relationship (ER) Diagram represents the logical structure of the database used in the Travel Booking Platform. It identifies key entities, their attributes, and the relationships between them.

Main Entities

- User
- Flight
- Hotel
- Booking
- Payment
- Admin

Relationships

- One user can make multiple bookings
- Each booking is linked to one flight or one hotel
- Every booking has one associated payment record

The ER Diagram helps in designing normalized database tables and maintaining data integrity.

4.3 Data Flow Diagram (DFD)

The Data Flow Diagram illustrates how data flows through the Travel Booking Platform and how it is processed at different stages. It shows the interaction between users, system processes, and the database.

DFD Level 0 (Context Diagram)

- Users interact with the Travel Booking System
- The system processes user requests and stores data in the database

DFD Level 1

- User registration and login
- Travel search and booking process
- Payment processing
- Booking confirmation

DFDs help in understanding system functionality and identifying data dependencies.

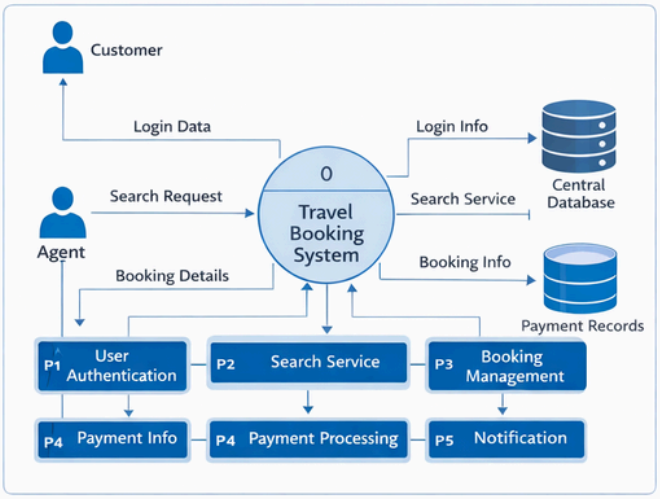


Figure 4.3: Level 1 DFD of Travel Booking System

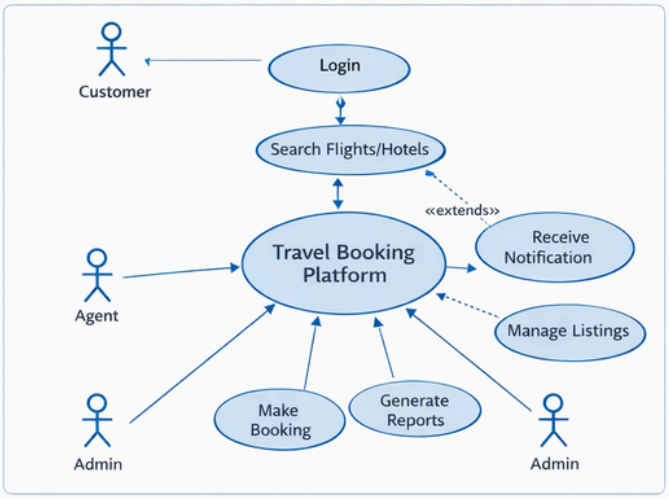


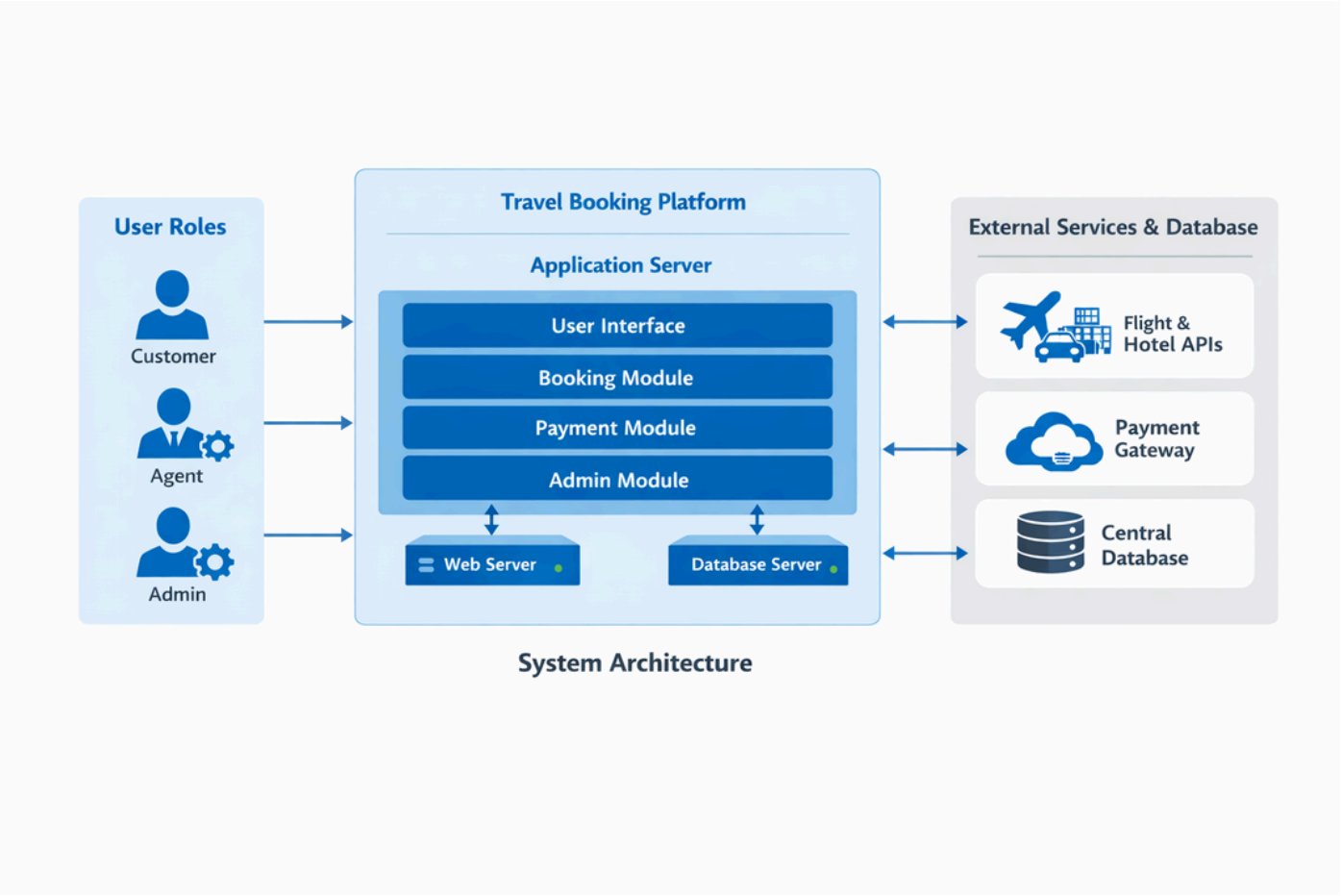
Figure 4.4: Use Case Diagram of Travel Booking Platform

4.4 System Architecture / Use Case Diagram

System Architecture

The Travel Booking Platform follows a three-tier architecture:

- **Presentation Layer** – User interface
- **Application Layer** – Business logic and processing
- **Database Layer** – Data storage



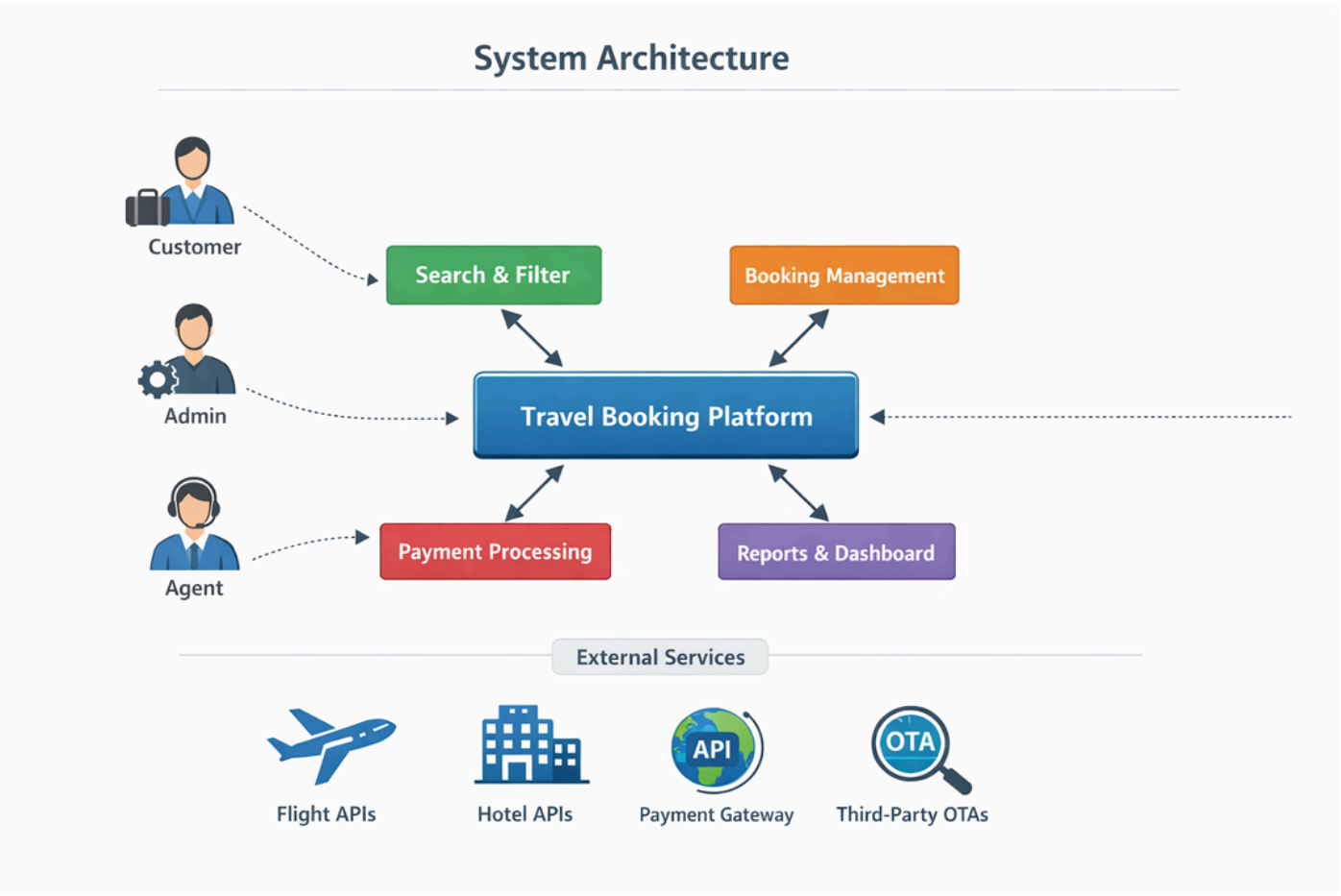
System Architecture

This architecture ensures scalability, security, and ease of maintenance.

Use Case Diagram (Overview)

- **Customer** – Search travel options, book services, cancel bookings, view booking history
- **Admin** – Manage users, listings, pricing, and reports
- **Agent** – Manage travel service details

These diagrams provide a clear understanding of system behavior, user interaction, and access control.


System Architecture
Customer
Admin
Agent
Search & Filter
Booking Management
Travel Booking Platform
Payment Processing
Reports & Dashboard
External Services
Flight APIs
Hotel APIs
API
Payment Gateway
OTA
Third-Party OTAs

5. Implementation

The implementation phase focuses on converting the system design into a fully functional Travel Booking Platform. During this phase, all modules are developed according to the requirements specified in the Software Requirements Specification (SRS). Agile methodology is followed to ensure incremental development, continuous testing, and flexibility in handling changing requirements.

The Travel Booking Platform is implemented as a web-based application to provide easy accessibility and real-time booking services to users. Development is carried out in multiple Agile sprints, where features are built, tested, and refined iteratively to ensure system stability and quality.

5.1 Program Code

The system is developed using a modular architecture, where each functional component is implemented as an independent module. This approach improves system maintainability, scalability, and ease of testing.

Major Implemented Modules

- User Authentication Module
- Travel Search Module (Flights and Hotels)
- Booking Management Module
- Payment Processing Module
- Notification and Confirmation Module
- Admin Management Module

Implementation Approach

- The frontend handles user interaction, form validation, and navigation
- The backend manages business logic, workflows, and transaction processing
- The database securely stores user, booking, and payment-related data

Each module follows standard coding practices and is tested during every Agile sprint to ensure reliability and performance.

5.2 Output Screens

The system provides different output screens based on user roles to ensure secure and relevant access.

Main Output Screens

- Login and Registration Screen
- Search and Filter Screen
- Booking Summary Screen
- Payment Screen
- Booking Confirmation Screen

- Admin Dashboard

All screens are designed with simple navigation, clear layouts, and responsive design to enhance user experience and ensure smooth interaction with the platform.

6. Testing

- Testing ensures that the Travel Booking Platform functions correctly, securely, and efficiently under various conditions.
- The main objective of testing is to identify defects, verify requirements, and ensure a smooth user experience.
- Agile methodology emphasizes continuous testing during each sprint to detect issues early and minimize rework.
- Both functional testing and basic non-functional testing are performed throughout development.
- Continuous feedback from testing helps improve system stability and performance.

6.1 Test Data

- Test data is prepared to validate different user actions and system workflows.
- Realistic and controlled test inputs are used to simulate actual user behavior.
- Test data includes both valid and invalid scenarios to ensure error handling.

Sample Test Data:

- Valid and invalid user login credentials
- Flight and hotel search parameters (source, destination, dates)
- Booking dates and travel details
- Test payment details using dummy payment mode
- Admin and agent login credentials
- Test data covers normal cases, boundary cases, and error conditions.
- Proper test data preparation ensures system reliability and accuracy.

6.2 Test Result

- Testing results confirm that the system meets all functional requirements.
- All major modules were tested successfully during Agile sprints.
- Issues identified during testing were resolved within the same sprint cycle.

Test Result Summary:

- User registration and login function correctly
- Flight and hotel search features work as expected
- Booking workflow performs accurately
- Payment processing is secure and reliable
- Booking confirmation and notifications are generated properly
- Role-based access control is enforced correctly
- All critical test cases passed successfully

Test Case Details

- **TC01 – Login (Valid User):**
  - Input: Valid username and password

- Expected Result: User logged in successfully
- Actual Result: As expected
- Status: Pass

- **TC02 – Login (Invalid User):**
  - Input: Wrong password
  - Expected Result: Error message displayed
  - Actual Result: As expected
  - Status: Pass
- **TC03 – Search Module:**
  - Input: Source, destination, and travel date
  - Expected Result: Search results displayed correctly
  - Actual Result: As expected
  - Status: Pass
- **TC04 – Booking Module:**
  - Input: Valid travel details
  - Expected Result: Booking confirmed
  - Actual Result: As expected
  - Status: Pass
- **TC05 – Payment Module:**
  - Input: Test payment details
  - Expected Result: Payment successful
  - Actual Result: As expected
  - Status: Pass
- **TC06 – Cancel Booking:**
  - Input: Valid booking ID
  - Expected Result: Booking cancelled
  - Actual Result: As expected
  - Status: Pass
- Testing confirms that the Travel Booking Platform is stable, reliable, and ready for real-world usage.

Test Case ID	Module	Test Scenario	Test Data	Expected Result	Actual Result	Status
TC01	Login	Valid user login	Valid username & password	User logged in successfully	As expected	Pass
TC02	Login	Invalid user login	Wrong password	Error message displayed	As expected	Pass
TC03	Search	Search flight/hotel	Source, destination, travel date	Results displayed correctly	As expected	Pass
TC04	Booking	Book travel service	Valid travel details	Booking confirmed	As expected	Pass
TC05	Payment	Online payment	Test payment details	Payment successful	As expected	Pass
TC06	Booking	Cancel booking	Valid booking ID	Booking cancelled	As expected	Pass

7. User Manual

User Manual

- The User Manual provides clear instructions to help users operate the Travel Booking Platform efficiently.
- The system is user-friendly and role-based, allowing easy usage without technical knowledge.
- The design focuses on simplicity, security, and smooth navigation for all users.

7.1 How to Use Project Guidelines

General Usage Steps:

- Open the Travel Booking Platform using a supported web browser
- Register as a new user or log in with valid credentials
- Search for flights or hotels based on travel requirements
- Select suitable travel options and proceed to booking
- Complete the payment process and receive booking confirmation
- Log out after completing activities for security

User Roles:

- **Customer:** Search travel options, book services, cancel bookings, and view booking history
- **Admin:** Manage travel listings, users, pricing, reports, and system settings
- **Agent:** Manage and update travel service details

7.2 Screen Layouts and Description

- **Login Screen:** Allows users to securely access the system
- **Search Screen:** Enables searching and filtering of flights and hotels
- **Booking Screen:** Displays selected travel details and pricing information
- **Payment Screen:** Supports secure online payment transactions
- **Admin Dashboard:** Provides monitoring, management, and control features
- Each screen is designed for easy navigation, clarity, and fast user interaction

8. Project Applications and Limitations

This section explains the real-world applications of the Travel Booking Platform and highlights its current limitations.

Project Applications

The Travel Booking Platform can be effectively used in various travel-related environments to simplify and automate travel planning and booking activities.

Applications include:

- Online travel agencies for managing and booking travel services
- Airline and hotel booking management systems
- Corporate travel planning and management
- Individual travelers for personal trip planning

Example:
A traveler can search for flights, book hotels, and manage travel itineraries using a single integrated platform.

Project Limitations

Despite its advantages, the Travel Booking Platform has certain limitations that need to be considered.

Limitations include:

- Requirement of stable internet connectivity
- Limited offline functionality
- Dependency on third-party travel service APIs
- Absence of a native mobile application in the current version

These limitations can be addressed through future system enhancements.

9. Conclusion and Future Enhancement

Conclusion

The Travel Booking Platform project successfully demonstrates the design and development of a modern, user-friendly, and scalable travel management system using Agile methodology. The platform simplifies the process of searching, comparing, and booking travel services such as flights and hotels through a single integrated system. By automating booking workflows and payment processing, the system reduces manual effort and enhances overall customer satisfaction.

The use of Agile development practices enables continuous delivery, regular testing, and rapid incorporation of changes, resulting in improved software quality and reduced development risk. The platform effectively meets both functional and non-functional requirements and is suitable for real-world travel business operations.

Future Enhancement

The Travel Booking Platform can be further enhanced to support advanced travel features and improve user experience and business value.

Future enhancements include:

- Mobile application support for Android and iOS platforms
- AI-based travel recommendations
- Dynamic pricing and discount management
- Integration with third-party travel APIs
- Multi-language and multi-currency support

These enhancements will increase platform usability, expand its reach, and add greater business value.

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