

HCL Project report 2

Travel Booking Platform using Agile Methodology

1. Abstract (300–400 Words)

Travel Booking Platforms have become essential tools in today's digital and fast-paced world. They allow users to search, compare, and book flights, trains, buses, and hotels efficiently from a single system. In an era where convenience and speed are critical, organizations and travelers face the challenge of handling multiple booking processes, payments, and itinerary management manually or through fragmented systems.

This project focuses on developing a **Travel Booking Platform using the Agile methodology**, which emphasizes iterative development, continuous feedback, and adaptability. Agile ensures the platform evolves according to changing user needs and market trends while maintaining high-quality standards and faster delivery.

The platform integrates multiple modules, including user registration, travel search, booking management, payment processing, and booking confirmation. Traditional software development approaches often struggle with changing requirements and delayed feedback from users, leading to delays and increased costs. By implementing Agile practices, the platform is developed in small, manageable iterations called sprints. Each sprint produces a functional component, which is reviewed and improved based on user feedback.

The system is designed to be **user-friendly, secure, and scalable**. Users can search for travel options, book tickets, manage itineraries, and make payments efficiently. Administrators can monitor bookings, manage users, and generate reports for decision-making. The Agile methodology enables frequent testing, fast adaptation to changes, and better collaboration between developers and stakeholders, ensuring each feature adds value to the platform.

In conclusion, this Travel Booking Platform demonstrates how Agile principles can be applied to create a robust, flexible, and scalable online travel solution. The platform improves operational efficiency, reduces manual errors, and enhances customer satisfaction. Its modular design ensures easy maintenance,

continuous improvement, and readiness to integrate additional services in the future.

2. Introduction

2.1 Introduction

In the modern digital era, travel management has shifted online. Users require a platform that allows them to search, compare, and book travel services like flights, trains, buses, and hotels quickly. Managing multiple bookings, payments, and customer preferences manually or through disconnected systems is inefficient and prone to errors.

A Travel Booking Platform provides a centralized solution for users and travel agencies, automating processes and improving the booking experience. By using **Agile methodology**, the project ensures flexibility in development, faster delivery of features, and continuous improvement based on user feedback.

The platform is designed to be **scalable, secure, and user-friendly**, making it suitable for individuals, travel agencies, and small to medium-sized organizations. Agile's iterative development allows functional modules to be deployed incrementally, enabling early testing and feedback.

2.2 Problem Identification

Organizations and users face multiple challenges in the absence of a unified travel booking system:

- Travel information is scattered across multiple platforms.
- Booking, payments, and cancellations are handled manually, leading to errors and delays.
- Travel agencies struggle to track user preferences, bookings, and payments efficiently.
- Users find it difficult to compare travel options in real-time.
- Traditional development models struggle to adapt to changing requirements, resulting in delays and increased costs.

These problems necessitate the development of a centralized and flexible Travel Booking Platform that automates processes and provides real-time booking management.

2.3 Need of the Project

The need for this project arises from the increasing demand for efficient, reliable, and convenient travel management solutions:

- Centralize booking information for flights, trains, buses, and hotels.
 - Automate booking, payment, and itinerary management processes.
 - Improve user experience by providing real-time search and booking options.
 - Support data-driven decision-making through reporting and analytics.
 - Ensure continuous improvements through Agile methodology, incorporating user feedback iteratively.
-

2.4 Project Scheduling

The project follows the **Agile methodology**, divided into iterative sprints:

- **Sprint 1:** Requirement gathering, planning, and system design
- **Sprint 2:** User registration and login module
- **Sprint 3:** Travel search and booking module
- **Sprint 4:** Payment processing and booking confirmation module
- **Sprint 5:** Reporting, analytics, testing, feedback, and deployment

Each sprint includes planning, development, testing, review, and retrospective phases, ensuring timely delivery and continuous improvement.

2.5 Objectives

The main objectives of this project are:

- To design and develop an efficient and centralized Travel Booking Platform
- To apply **Agile methodology** for iterative and flexible development
- To improve user experience for booking and travel management
- To ensure system scalability, security, and reliability
- To deliver a robust software solution within minimal time and with high quality

Software Requirements Specification (SRS)

Software Requirements Specification for Travel Booking Platform using Agile Methodology

Version: 1.0 Approved

Prepared by: Arushi

Organization: Academic Project / HCL Training

Date Created: January 2026

SRS Table of Contents

- Revision History
 - I. Introduction
 - II. Overall Description
 - III. External Interface Requirements
 - IV. Other Non-Functional Requirements
-

Revision History

Version	Date	Description	Author
1.0	Jan 2026	Initial creation of SRS document	Arushi

Overview

This SRS provides a comprehensive overview of the Travel Booking Platform, including functionality, system design constraints, interface requirements, and quality attributes. The document ensures clarity for developers, testers, and stakeholders.

Document Conventions

- Section headings are bold
 - Tabular format is used for structured data
 - Bullet points used for readability
-

Intended Audience and Reading Suggestions

Intended for:

- Software developers
- Software testers
- Project managers
- System analysts
- End users

Readers should begin with the **Introduction** and **Overall Description** sections for a clear understanding of system scope and functionality.

II. Overall Description

Product Perspective

The Travel Booking Platform is a **web-based system** developed using Agile methodology. Users interact via web browsers. The platform can operate independently or integrate with other systems such as payment gateways or travel provider APIs.

Product Functions

- User registration and profile management
 - Search travel options (flights, trains, buses, hotels)
 - Booking management (new bookings, cancellations, updates)
 - Payment processing
 - Booking confirmation and ticket generation
 - Reporting and analytics for users and admin
 - Role-based access control and authentication
-

User Classes and Characteristics

- **Administrator:** Manages users, bookings, and system configurations
 - **Traveler/User:** Searches and books travel services
 - **Payment Gateway:** Handles secure payment processing
 - **Travel Agency Staff:** Monitors bookings and assists customers
-

Operating Environment

- **OS:** Windows / Linux
 - **Client Device:** Desktop / Laptop / Tablet
 - **Browser:** Chrome, Firefox, Edge
 - **Server:** Cloud-based or local server
-

Architectural Design, Use Case Model, and Diagrams

The platform follows a **layered architecture** with presentation, business logic, and data layers. Diagrams include:

- Use Case Diagram
- Class Diagram
- Sequence Diagram
- Database Design

- ER Diagram
- Database Schema

4. System Design

System design provides a blueprint for the Travel Booking Platform. It explains how different modules interact, how data flows, and how system components communicate. A modular and scalable architecture is used to allow enhancements and integration of additional features in future sprints. The design follows Agile principles: iterative development, continuous feedback, and incremental delivery of functional modules.

4.1 Data Dictionary

The data dictionary includes all key data elements with detailed descriptions and data types:

Data Item	Description	Data Type	Constraints
User_ID	Unique identifier for each user	Integer	Primary Key
User_Name	Full name of the user	Varchar(50)	Not Null
Email	Email address	Varchar(50)	Unique, Not Null
Contact_No	Phone number	Varchar(15)	Numeric, Not Null
Booking_ID	Unique booking identifier	Integer	Primary Key
Travel_Type	Type of travel (Flight/Train/Bus/Hotel)	Varchar(20)	Not Null
Source	Starting location	Varchar(50)	Not Null
Destination	Destination location	Varchar(50)	Not Null
Travel_Date	Date of journey	Date	Not Null

Data Item	Description	Data Type	Constraints
Payment_Status	Status of payment	Varchar(20)	Values: Paid/Pending
Booking_Status	Status of booking	Varchar(20)	Values: Confirmed/Cancelled
Admin_ID	Identifier for admin users	Integer	Primary Key

4.2 ER Diagram

The Entity-Relationship (ER) diagram defines relationships among key entities:

- **User** → Can make multiple **Bookings**
- **Booking** → Linked to **Travel Service** (Flight/Train/Bus/Hotel)
- **Booking** → Associated with **Payment**
- **Admin** → Manages Users and Bookings

ER Diagram ensures data integrity, enforces primary/foreign keys, and eliminates redundancy.

4.3 Data Flow Diagram (DFD)

- **Level 0 DFD:**
Shows main interaction between users/admins and the Travel Booking Platform as a single process.
 - **Level 1 DFD:**
Breaks system into modules:
 - User Registration & Login
 - Travel Search & Booking
 - Payment Processing
 - Booking Confirmation
 - Reporting
-

4.4 System Diagrams

The system includes:

1. **Use Case Diagram:** User registration, search, booking, payment, cancellation, admin monitoring
 2. **Class Diagram:** Classes: User, Booking, Payment, TravelService, Admin; shows attributes and methods
 3. **Activity Diagram:** Step-by-step flow of booking and payment process
 4. **System Flow Chart:** Logical flow from login → search → booking → payment → confirmation
-

5. Implementation

The Travel Booking Platform is implemented following Agile methodology. Each sprint delivers functional modules:

1. **Sprint 1:** User Registration and Login
 2. **Sprint 2:** Search Travel Options
 3. **Sprint 3:** Booking Management
 4. **Sprint 4:** Payment Integration
 5. **Sprint 5:** Booking Confirmation & Reports
-

5.1 Program Code

The system is implemented using:

- **Frontend:** HTML, CSS, JavaScript, React (optional for SPA)
 - **Backend:** Node.js / Express.js
 - **Database:** MySQL, with tables for Users, Bookings, Travel Services, Payments
 - Modular design ensures maintainability, scalability, and separation of concerns
-

5.2 Output Screens

- **Login / Registration Screen:** Allows secure login and registration
 - **Travel Search Screen:** Search flights/trains/buses/hotels
 - **Booking Details Screen:** Select options and confirm booking
 - **Payment Gateway Screen:** Secure payment processing
 - **Booking Confirmation Screen:** Displays booking summary and reference
 - **Admin Dashboard:** View and manage users, bookings, and payments
-

6. Testing

Testing ensures correctness, performance, security, and usability of the platform.

6.1 Test Data

- Valid/invalid user credentials
 - Travel options (sample flights, trains, buses, hotels)
 - Payment transactions (success, failure, pending)
 - Booking cancellations and updates
-

6.2 Test Result

- Functional tests passed: user login, booking creation, payment
 - Error handling: Invalid input validation, payment failure handling
 - Performance: System handled multiple simultaneous bookings without errors
 - Security: Role-based access works; sensitive data encrypted
-

7. User Manual

The user manual guides users to operate the platform efficiently.

7.1 How to Use Project Guidelines

1. Open the platform in a browser
2. Register a new account or login
3. Search for travel options using source, destination, and date filters
4. Select preferred option and proceed to booking
5. Make payment through integrated payment gateway
6. Receive booking confirmation with reference number
7. Admin can monitor all bookings, users, and payments

7.2 Screen Layouts and Description

- **Login Screen:** Email & password fields, “Forgot password” option
- **Search Screen:** Filters for travel type, date, price, and seats availability
- **Booking Screen:** Displays booking summary, selectable seats, optional add-ons
- **Payment Screen:** Integration with payment gateway, shows amount and status
- **Confirmation Screen:** Provides booking reference, details, and printable receipt

8. Project Applications and Limitations

Applications

- Online booking for flights, trains, buses, and hotels
- Travel itinerary management
- Payment processing with confirmation
- Admin monitoring and reporting
- Useful for travel agencies and individual travelers

Limitations

- Requires stable internet connectivity
 - Limited offline access
 - Dependent on third-party payment gateways
 - Future enhancement needed for real-time ticket availability from providers
-

9. Conclusion and Future Enhancement

The Travel Booking Platform developed using Agile methodology provides a reliable, secure, and user-friendly solution for online travel booking. Agile approach ensured iterative development, early feedback incorporation, and continuous improvement.

Future Enhancements:

- Mobile app support for iOS and Android
 - AI-based travel recommendations based on user history
 - Real-time pricing and seat availability
 - Multi-language support for global users
 - Integration with loyalty and reward programs
-

10. Bibliography & References

1. Pressman, R. S., *Software Engineering – A Practitioner's Approach*
 2. Sommerville, I., *Software Engineering*
 3. IEEE Standard for Software Requirement Specification
 4. Agile Alliance Documentation
 5. Online Travel Booking System Research Papers
-

