Travel Booking Platform Using Agile Methodology

(Java – Console Based Application)

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1. Abstract

The travel and tourism industry has experienced rapid growth in recent years, increasing the demand for efficient and reliable travel booking systems. Traditional methods of booking travel services such as tickets and travel packages are often manual, time-consuming, and prone to errors. Customers expect fast access to accurate travel information, easy booking processes, and proper management of booking records. To address these challenges, automated travel booking platforms are widely adopted.

This project focuses on the design and development of a **Travel Booking Platform using Agile methodology**, implemented as a **Java-based console application**. The proposed system allows users to view available travel options, book travel tickets, cancel bookings, and view booking details through a menu-driven console interface. An admin role is responsible for managing travel options, prices, and availability. The console-based approach makes the application lightweight, easy to understand, and suitable for academic learning and small-scale organizations.

Agile methodology is used in this project to ensure flexibility, faster development, and continuous improvement. The development process is divided into short iterations called sprints, where each sprint delivers a functional module such as booking management, cancellation, or report viewing. Continuous testing and feedback during each sprint help in identifying errors early and improving overall system quality.

The project is implemented using Java programming language due to its object-oriented features, platform independence, security, and robustness. Various test cases are executed to validate system functionality. This project demonstrates the practical application of Agile methodology in developing a travel booking system and provides scope for future enhancements such as database integration, graphical user interface, and online payment facilities.

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2. Introduction

2.1 Introduction

A Travel Booking Platform is a software system that enables users to plan and book travel services such as transportation and travel packages. It simplifies the booking process by providing a centralized system to manage travel-related information and bookings efficiently.

2.2 Problem Identification

Manual or semi-automated travel booking systems often result in data inconsistency, incorrect bookings, difficulty in tracking booking history, and lack of data security. As the number of bookings increases, managing records becomes complex and inefficient.

2.3 Need of the Project

There is a strong need for an automated system that can manage travel bookings efficiently, reduce manual effort, and improve accuracy. A Java-based console application provides a simple and cost-effective solution for managing travel bookings in small organizations and for educational purposes.

2.4 Project Scheduling

The project is developed using Agile methodology and divided into the following phases:

- Requirement Analysis and Planning
- System Design
- Implementation
- Testing
- Documentation

Each phase is completed in short iterations to allow flexibility and continuous improvement.

2.5 Objectives

- To develop a Travel Booking Platform using Java
- To apply Agile methodology in software development
- To manage travel bookings efficiently

- To understand object-oriented programming concepts

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3. Software Requirement Specification (SRS)

3.1 Purpose

The purpose of this Software Requirement Specification (SRS) is to describe the functional and non-functional requirements of the Travel Booking Platform. It serves as a reference document for understanding system behavior and constraints.

3.2 Scope

The scope of the project includes basic travel booking operations such as viewing travel options, booking tickets, canceling bookings, and viewing booking history. Features like online payment and real-time availability updates are outside the current scope.

3.3 Hardware / Software Requirements

Hardware Requirements:

- Processor: Intel i3 or above
- RAM: Minimum 4 GB
- Hard Disk: Minimum 10 GB free space

Software Requirements:

- Operating System: Windows 10 / Windows 11
- Programming Language: Java (JDK 8 or above)
- IDE: Eclipse IDE

3.4 Tools

- Java Development Kit (JDK)
- Eclipse IDE
- GitHub (for report hosting)

3.5 Software Process Model

The Agile Software Development Model is used in this project. Agile emphasizes iterative development, customer collaboration, continuous testing, and quick response to change.

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4. System Design

4.1 Data Dictionary

Field Name	Description
BookingID	Unique booking identification number
UserName	Name of the traveler
TravelType	Bus / Train / Flight
Source	Starting location
Destination	Ending location
TravelDate	Date of journey
Price	Booking cost

4.2 ER Diagram

The Entity Relationship (ER) diagram consists of entities such as User, Booking, and Admin. Each booking is associated with a user and contains travel details such as source, destination, date, and price.

4.3 Data Flow Diagram (DFD)

The Data Flow Diagram illustrates the flow of data between the user and the Travel Booking Platform. It shows processes like booking travel, canceling bookings, and viewing booking details.

4.4 Use Case Diagram

Actors involved in the system are User and Admin. The main use cases include View Travel Options, Book Travel, Cancel Booking, View Booking Details, and Manage Travel Options.

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5. Implementation

5.1 Program Code

The Travel Booking Platform is implemented using Java programming language and follows a menu-driven console approach. Object-oriented concepts such as classes, objects, encapsulation, and collections are used to manage booking data effectively.

5.2 Output Screens

The application displays text-based menus on the console, allowing users to select options and view booking confirmations or error messages.

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6. Testing

6.1 Test Data

Sample booking data is used to test system functionalities such as booking creation, cancellation, and viewing booking records. Invalid inputs are also tested to ensure proper error handling.

6.2 Test Result

All test cases were executed successfully. The system produced correct output for valid inputs and appropriate messages for invalid operations.

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7. User Manual

7.1 How to Use Project Guidelines

1. Run the Java application

2. Select the required option from the main menu
3. Enter travel and booking details as prompted
4. View booking confirmation on the console
5. Exit the application safely

7.2 Screen Layouts and Description

The application uses a simple console-based interface with clearly labeled menu options for ease of use.

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8. Project Applications and Limitations

Applications

- Small travel agencies
- Educational institutions
- Training and learning purposes

Limitations

- Console-based user interface
- No online payment integration
- No database connectivity

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9. Conclusion and Future Enhancement

The Travel Booking Platform developed using Java and Agile methodology successfully demonstrates how a travel booking system can be implemented efficiently. The project enhanced understanding of Agile practices, requirement analysis, system design, and Java programming. Future enhancements may include database integration, graphical user interface development, online payment systems, and real-time travel data integration.

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10. Bibliography & References

- Agile Manifesto
- Java Programming Documentation
- Software Engineering Textbooks