MINI PROJECT – IS2106

Software Requirements Specification

For

Highway Rout Online Bus Ticket Booking System

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Revision History

Name	Date	Reason for changes	Version
Req. Gathering	April 02 , 2024	Gathering and analyzing software requirements specifications.	1
System Analysis	April 16 , 2024	Inserting in depth analysis with necessary diagrams.	2

1 Introduction

1.1 Purpose

- Our project SLTB TransitEase has included a QR code creation feature to improve user experience and simplify the reservation procedure. The technology attempts to give users a quick and easy way to get their tickets by creating QR codes after successful online seat reservation payments. This makes it possible for passengers to verify their tickets quickly and easily by only showing their QR codes to bus conductors as they board. In the end, the use of QR codes simplifies the bus service's and passenger ticketing process, guaranteeing a seamless and comfortable travel experience.

1.2 Intended Audience

- System developers.
- Representatives from the sri lanka transport board.
- Passengers of sri lanka transport board buses.

1.3 Project Scope

- The scope of the project creates a thorough highway bus reservation system specifically for Sri Lanka. This system will include these functionalities such as User Registration, Bus Route Selection, Seat Selection, Payment Processing, Booking Confirmation, User Account Management, Admin Panel.
- Easy registration, a selection of bus routes, seat selection, and safe online payment processing will all be available to users. Bookings will be quickly confirmed by the system, which also enables customers to effectively manage their accounts. Access to tools for reporting and system management will be available to workers.
- In order to protect user data and transactions, stringent safeguards will be put in place in addition to maintaining compatibility with popular devices and browsers used in Sri Lanka. Moreover, continuing support and maintenance will be offered to guarantee the system's dependability and functionality over time.

1.4 Overview

- SLTB TransitEase is a comprehensive online platform for seat reservation on Sri Lanka highway buses.
- **Features:**
  - User registration
  - Bus route selection
  - Seat selection
  - Payment processing
  - Booking confirmation
  - Unique QR codes generated for each seat reservation
  - Administrative panel for bus operators
- **Goal:**

Modify the ticketing process to give customers more efficiency and convenience while supporting bus operators in improving customer happiness and operational effectiveness.

2 Specific requirement

2.1 Functional requirements

Requirements	Description
User Registration	• Users can register for an account with personal information. • System validates user inputs during registration for accuracy and completeness. • Users receive a confirmation email upon successful registration.

Bus Route Selection	• Users browse and search available bus routes. • System displays relevant information about each bus route: departure/arrival times, locations, fares. • Users select preferred bus routes for booking.
Seat Selection	• Users see interactive seating layout for each bus. • System displays available seats and highlights selected seats during booking. • Users select one or multiple seats for reservation.
Payment Processing	• System supports various payment methods: credit/debit cards, mobile wallets, online banking. • Users redirected to secure payment gateway to complete transactions. • System generates booking confirmation upon successful payment.
Booking Confirmation	• Users receive booking confirmation email or SMS with reservation details. • System stores booking details in a database for reference and tracking. • Users can view booking history and download/print booking confirmations.
User Account Management	• Registered users securely log in to their accounts. • Users update personal information like contact details and password. • System provides options for password reset or account recovery if needed.

Admin Panel	• Administrators access administrative dashboard to manage bus routes, seating, bookings. • Admin panel allows addition, updating, or deletion of bus routes and seats. • Administrators view and export booking records for reporting and analysis.

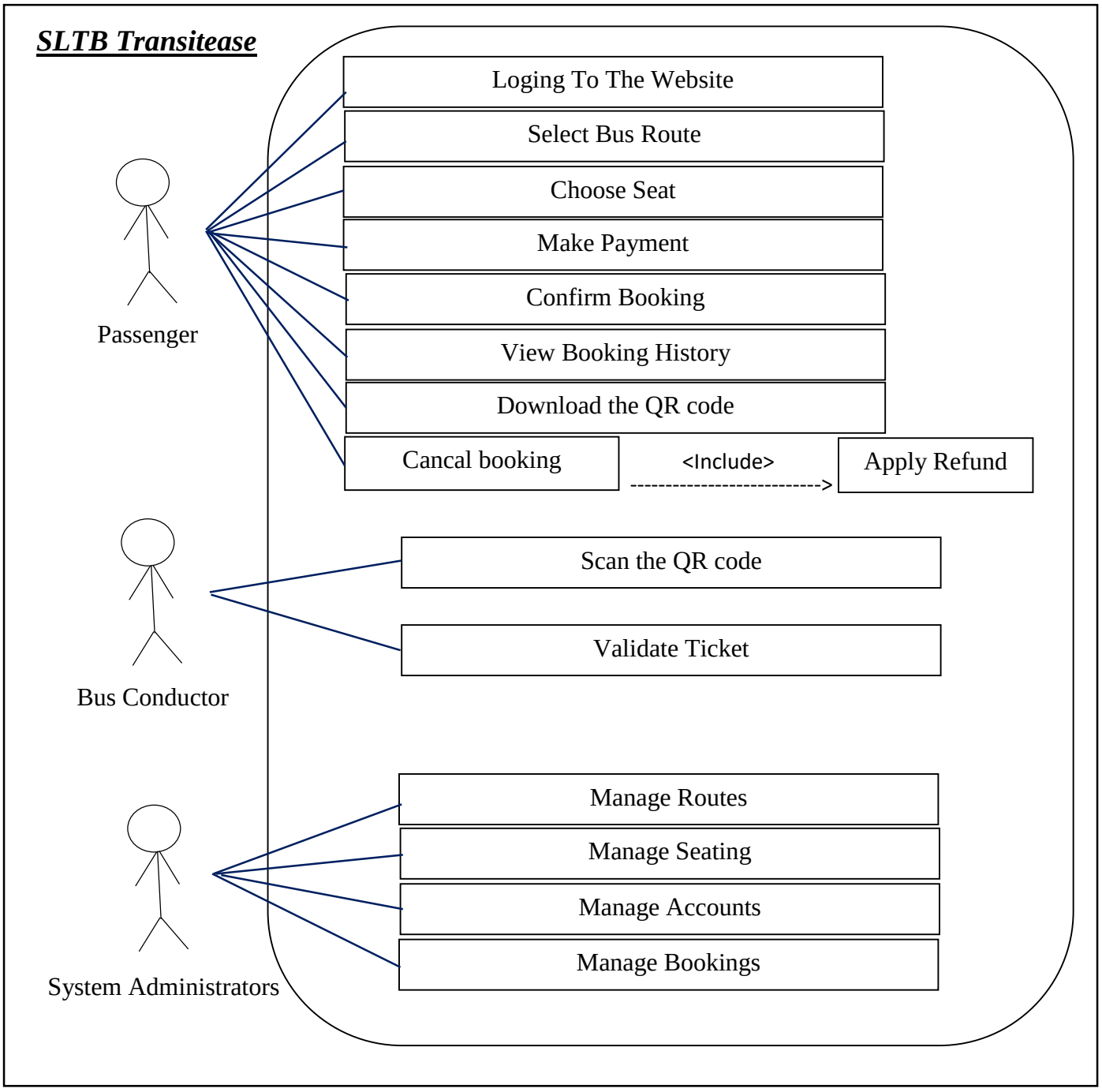
2.2 Non functional requirements

Requirements	Description
Performance Requirements	• System should handle a high volume of concurrent users during peak hours. • Response times for user interactions should be < 3 seconds. • System should be scalable to accommodate future growth.
Safety Requirements	• Implement measures to ensure security and confidentiality of user data. • Encrypt sensitive information during transmission and storage. • Prevent unauthorized access to user accounts and booking records.
Security Requirements	• Protect against common security threats: XSS, SQL injection, CSRF attacks. • Implement user authentication and authorization mechanisms. • Log and monitor security-related events for auditing and incident response.

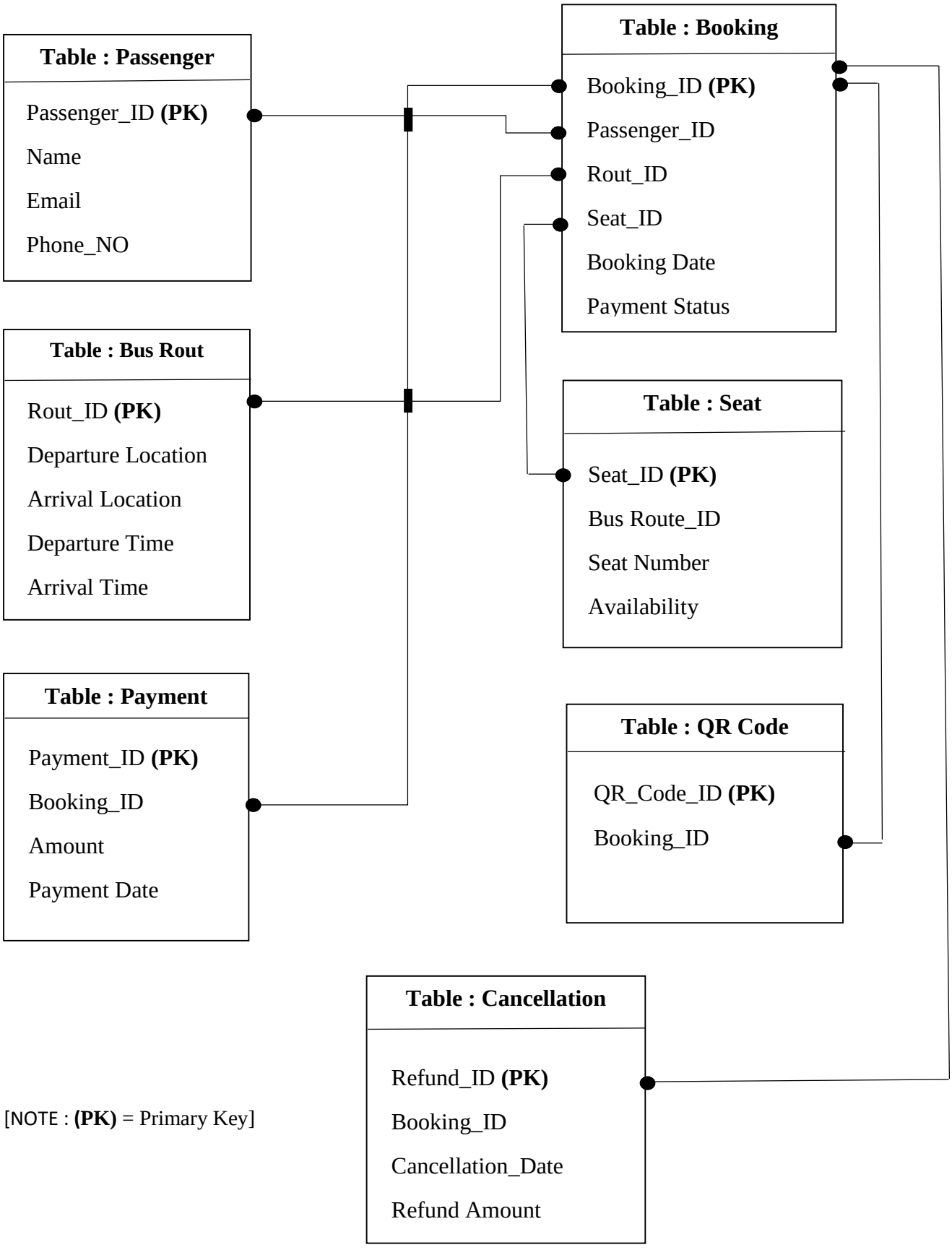
Reliability Requirements	• System should have high availability (uptime of 99.9%). • Ensure data integrity for booking records and payment transactions. • Implement automatic failover and recovery mechanisms.
Maintainability Requirements	• Design modular and well-documented code for ease of maintenance. • Deploy software updates and patches without disrupting operations. • Adhere to coding standards and best practices.
Usability Requirements	• Ensure intuitive and easy-to-navigate user interface. • Provide clear instructions and error messages. • Support accessibility standards and multiple languages.
Compatibility Requirements	• Support a wide range of web browsers and devices. • Ensure compatibility with different operating systems. • Reach broad audience

3 System design

3.1 Use Case Diagram



3.2 DB Diagram (0 Level DFD)



[NOTE : **(PK)** = Primary Key]

3.3 ER Diagram