Software Engineering I

Group Assignment.

Daisy A. Atito : SCT221-C004-0427/2022

Margaret Achieng :SCT221-C004-0118/2023

Kate Moraa :SCT221-C004-0132/2023

The railway reservation system functions as follows:

The passenger is required to fill in a reservation form giving details of his journey. The counter clerk ensures whether the place is available. If so, entries are made in a register, tickets are prepared, amount is computed and cash is accepted.

A booking statement is prepared in triplicate format from the reservation register. One copy is retained as an office copy, the other is pasted to the compartment and third is passed on to the train conductor. Besides the booking statement, a cash statement is prepared at the end of each shift.

Prepare systems require specification and system specification for the above problem.

System Requirements Specification

Introduction:

System Name: Railway Reservation System

Purpose: To facilitate passenger ticket booking, seat reservation, and financial management for a railway company.

Scope: The system covers the reservation process from passenger data entry to the preparation of booking and cash statements.

Functional Requirements:

Passenger Reservation:

- The system shall provide a user-friendly interface for passengers to fill in reservation forms.
- The system shall check seat availability for the specified journey.
- The system shall prepare tickets based on the passenger's input.
- The system shall compute the total ticket amount based on the journey details.
- The system shall accept cash payments from passengers.

Booking Statement Generation:

- The system shall generate booking statements in triplicate format for each reservation.
- One copy shall be retained as an office record.
- Another copy shall be pasted in the designated compartment of the train.
- The third copy shall be provided to the train conductor.

Cash Statement:

- The system shall prepare a cash statement at the end of each shift.
- The cash statement shall summarize the cash collected during the shift.

Non-Functional Requirements:

Performance:

The system shall provide efficient responses during peak times.
It shall handle a large number of concurrent reservations.

Reliability:

The system shall be highly reliable, ensuring accurate reservations and financial transactions.

Security:

The system shall implement user authentication and authorization for secure access.
It shall use encryption for sensitive data.
Regular data backup shall be performed to prevent data loss.

User Interface:

The system shall have a user-friendly interface for passengers and counter clerks.

System Specification:

Technology Stack:

Programming Languages: PHP for the back-end, HTML/CSS/JavaScript for the front-end.

Database Management System: MySQL.

User Interface: Web-based interface for passengers, a desktop application for counter clerks.

Data Storage: The system shall maintain a reservation register in a MySQL database to track passenger reservations. Passenger and ticket information shall be stored securely.

Security Measures: The system shall implement user authentication and authorization for secure access. Sensitive data, such as financial transactions, shall be encrypted. Regular data backup shall be performed to prevent data loss.

Performance Optimization: Caching mechanisms shall be used for seat availability checks to reduce database load.Database queries shall be optimized for efficient data retrieval.

User Interfaces: A web-based application for passengers to input journey details and make reservations. A desktop application for counter clerks to manage reservations, print tickets, and handle cash transactions.

Reporting: The system shall generate booking statements in triplicate format. Cash statements shall be generated at the end of each shift.