**Project Proposal for SCD Lab**

# **Software Requirements Specification (SRS) for Transportation Reservation System**

# **Members:**

Muhammad Ammad BSSE (133)

Hamza Gul Khan BSSE (121)

Ahmed Asad Butt BSSE (110)

**Version:** 1.0

**Date:** [Date]

# **Document Control**

| **Version** | **Description** | **Author** | **Date** |
| --- | --- | --- | --- |
| **1.0** | **Initial Draft** | **Muhammad Ammad**  **Hamza Gul Khan**  **Ahmed Asas Butt** | **[Date]** |

**1. Introduction**

1.1 **Purpose**

The purpose of this document is to outline the software requirements for the development of a web-based Transportation Reservation System using the MERN (MongoDB, Express.js, React, Node.js) stack. This document defines the scope, features, and task division among team members for the project.

1.2 **Scope**

The Transportation Reservation System will provide users with the ability to book tickets for busses.

**2. Project Overview**

2.1 **Project Description**

The Transportation Reservation System aims to simplify the process of reserving and booking bus tickets.

2.2 **Key Features**

The key features of the system include:

* User registration and authentication.
* Reservation and booking of transportation services.
* Online payment for services.
* User profiles.

**3. Team and Task Division**

3.1 **Team Members**

* Ahmed Asad Butt: Front-end Developer
* Muhammad Ammad: Back-end Developer
* Hamza Gul Khan: Database Administrator

3.2 **Task Division**

The project tasks are divided among team members as follows:

* Ahmed Asad Butt:
  + Develop the user interface (UI).
  + Implement the front-end design.
  + Implement real-time vehicle tracking features.
* Muhammad Ammad:
  + Develop the server-side application.
  + Implement the reservation and booking logic.
  + Integrate payment processing.
* Hamza Gul Khan:
  + Design and maintain the database.
  + Ensure data consistency and performance.
  + Implement user authentication and authorization.

**4. Functional Requirements**

4.1 **User Registration and Authentication**

* Users should be able to register and log in securely.
* User data should be stored securely.

4.2 **Transport Reservation**

* Users should be able to reserve transportation services.
* Confirmation details should be provided to users.

4.3 **Vehicle Booking**

* Users should be able to book tickets.
* Vehicle availability and booking status should be updated in real-time.

**5. Non-Functional Requirements**

5.1 **Performance**

* The system should handle a large number of concurrent users.
* Response times should be minimal.

5.2 **Security**

* User data should be encrypted and stored securely.

5.3 **User Experience**

* The user interface should be intuitive and user-friendly.
* The system should be accessible on various devices and browsers.

**6. Design Patterns**

The following design patterns will be implemented in the project:

6.1 **MVC (Model-View-Controller) Pattern**

* The MVC pattern will be used to separate the application's concerns, enhancing maintainability and scalability.

6.2 **Factory Method Pattern**

* The Factory Method pattern will be employed for creating transportation reservation objects based on user requests.

This SRS document outlines the software requirements for the Transportation Reservation System project, including task division among team members and the implementation of two design patterns. It serves as a blueprint for the project's development and ensures that all stakeholders have a clear understanding of the project's scope and objectives.