**A PROPOSED OFFERING OF BUS TICKETING AND BOOKING SYSTEM**

**FOR VICTORY LINER INC.**

A Project Proposal Presented to the

Faculty of Datamex College of Saint Adeline, Inc.

In Partial Fulfillment of the Requirements for the

Degree of Bachelor of Science in Information Technology

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**REQUIREMENT SPECIFICATIONS**

**INTRODUCTION**

**Purpose of the document**

The purpose of this document is to define the requirements and specifications for the development of an Bus Ticketing System for Victory Liner. This document outlines the system’s objectives, core functionalities, scope, and operational requirements. It serves as a reference for all stakeholders including projects, developers, testers, and users to ensure a clear and mutual understanding of the system’s intended design for making our syayem successful work.

**Overview of the software system being developed.**

The proposed software system is a standalone desktop application that enables Victory Liner staff to manage ticket booking and issuance processes without requiring an internet connection. The system will support essential functions such as route selection, fare calculation, seat assignment, ticket printing, and passenger generation. Designed for deployment in terminals and ticket booths, the system ensures uninterrupted operations in areas with limited or no connectivity.

**Scope Of The Requirements Specification.**

* Ticket booking and issuance
* Passenger and trip data management
* Route and schedule handling
* Ticket printing and manage ticket booking
* Data backup for the system
* User access roles and system security

**Functional Requirements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. Requirement ID | 1. IRequirement Description | 1. Of Priority | 1. Dependencies | 1. Acceptance Criteria |
| . FR-001 | |  | | --- | | The system shall allow agents to book tickets with passenger details (name, age, contact, seat number, bus schedule). | | High | 1. None | |  | | --- | | Ticket saved Seat updated Ticket printed | |
| FR-002 | 1. The system shall allow agents to cancel tickets. | 1. High | FR-001 | |  | | --- | | Ticket removed Seat updated Cancellation slip printed | |
| FR-003 | |  | | --- | | The system shall allow administrators to manage bus schedules (routes, times, bus numbers). | | High | FR-001 | Add/edit/remove schedules Updates reflected in booking |
| FR-004 | |  | | --- | | The system shall allow administrators to manage ticket prices per route. | | 1. High | 1. None | Price changes saved  Booking uses updated price |
| FR-005 | 1. The system shall allow administrators to add and manage employee records ( name, age, address, contact, position, department, hired date). | High | None | Employee added/edited/deactivated  Records stored securely |
| FR-006 | The system shall allow login access with differentlike admin and users roles, Customer Service). | High | FR-005 | Correct role-based access  Unauthorized blocked |

*Table 1. Bus Ticketing and Booking System*

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**Non-Functional Requirements**

**Performance**

The system shall allow a ticket to be booked and printed within 5 seconds.

The system shall process at least 50 transactions per minute at peak times

**Usability**

The system shall provide a simple interface so ticket agents can be trained in less than 2 hours.

The ticketing screen shall allow booking with a maximum of 3 clicks/steps.

The system shall support local language display for ease of use

**Reliability**

The system shall function 100% offline without requiring internet connectivity.

The system shall store all booking data locally and sync with the central server once connectivity is restored.

The system shall provide daily automatic backups to prevent data loss

**Security**

Access to the system shall be restricted by role (manager, admin).

All stored passenger and payment data shall be encrypted locally.

The system shall log all transactions for audit purposes

**Scalability**

The system shall support up to 10 ticket counters at one bus terminal.

The local database shall handle at least 100,000 transactions without performance issues.

**Maintainability**

The system shall allow software updates to be installed without deleting existing booking data.

**USES CASES**

Use Case 1: Book Bus Ticket

Use Case Name: Book Ticket

**Description**

The ticketing agent books a bus ticket for a passenger by selecting the route, bus, date, and seat, then payment.

**Actors:**

Ticketing Agent, Passenger

**Preconditions**

The system is running and available.

Bus schedule and seat availability are loaded in the system.

**Postconditions**

A bus ticket is booked and stored in the system.

The ticket is printed and handed to the passenger.

**Alternate Flows**

If the selected seat is already booked, the system notifies the agent to choose another seat.

Use Case 2: Cancel Ticket

Use Case Name Cancel Ticket

**Description**

The ticketing agent cancels a previously booked ticket upon passenger request

and processes refund if applicable.

**Actors**

Ticketing Agent, Passenger

**Preconditions**

The ticket exists in the system

Cancellation policies are active.

Postconditions

The ticket is cancelled and the seat becomes available again.

Refund is recorded in the system (if applicable).

Alternate Flows

If the ticket is non-refundable, the system informs the agent.

If the ticket cannot be found, the system shows an error message

**Data Requirements**

|  |  |
| --- | --- |
| 1. Passengers | Name  Gender  Age  Phone Number  Email Address |
| 1. Bus | Bus ID |
| 1. Route | Destination  Distance  Estimated Duration |
| 1. Schedule | Departure Time  Arrival Time  Date |
| 1. Ticket | Passenger  Seat Number  Status (Booked/Cancelled)  Fare |
| 1. Payment | Payment Method (Cash/Card)  Amount  Payment (Successful/Failed) |
| 1. User | Username  Password  Role(Agent/Manager/Admin/User) |
| 1. Admin | Operations Department  Maintenance & Technical Department  Administrative & Management Department  Customer Service & Support  Employee  Maintenance & Technical Department  Administrative & Management Department  Customer Service & Support  Employee |

*Table 2. Bus Ticketing and Booking System*

**Relationships**

Passenger Ticket

One passenger can book many tickets

**BUS Schedule**

One bus can have an schedules

Route Schedule

One route can be linked to many schedules (1:M).

Schedule Ticket

One schedule can have many tickets booked (1:M).

Ticket Payment

Each ticket can have one payment record, but payment may fail

User Ticket

One agent (user) can process many tickets

**Assumption And Constraints**

**Assumption**

It is assumed that all ticketing agents and managers who use the system will have basic computer knowledge and can be trained within a short period of time. The system is designed to be installed on standard desktop computers available at bus terminals, without the need for any specialized hardware. Since the system is primarily offline, it is further assumed that internet connectivity will only be required occasionally, such as for synchronizing data with a central server, and not for day to day ticketing operations.

Another assumption is that bus routes, schedules, and fares will be predefined and entered into the system before operations begin, ensuring accurate ticket booking. Each bus is expected to have a fixed seating capacity, and the system assumes that no overbooking will be allowed beyond this limit. Since the system operates offline, payments are assumed to be mostly cashbased, although integration. Additionally, the system is assumed to generate automatic daily backups of ticketing data to prevent data loss. Finally, it is assumed that only authorized personnel, such as agents, managers, and administrators, will have access to the system

**Constaraints**

Despite these assumptions, the system is also subject to several constraints. The most significant is the requirement that the system must operate offline, with limited dependency on internet connectivity. This means that certain online features, such as real time booking synchronization across multiple terminals, may be restricted. Another constraint is related to storage capacity, as the number of transactions and passenger records that can be stored is limited by the local machine’s hardware.

The system must also run on PCs commonly used in bus stations, which restricts its portability to other operating systems unless specifically developed for them. Furthermore, the system must support local languages to ensure ease of use for agents and passengers in different regions. Since synchronization to the central server.

**Glossary**

The Offline Bus Ticketing System uses some basic terms. A passenger is the person who buys a ticket to travel. The ticket shows the seat, bus, route, and fare. A route is the path from the starting point to the destination, and a schedule is the bus timing. The bus is the vehicle that carries passengers. Booking means reserving a seat, while cancellation means cancelling a ticket so the seat is free again. The fare is the price of travel, and payment is the money given by the passenger. There are different users in the system. A ticketing agent books and cancels tickets, a manager checks reports and sales, and an administrator takes care of the system.

The system works mostly in offline mode, meaning it can work without the internet. All actions like booking, cancelling, or payment are called transactions. These are saved in the database. An audit log keeps a record of everything done for safety and tracking.

**Revision History**

|  |  |
| --- | --- |
| Dates | Description of revision |
| 08-18-25 | Make an figure agile |
| 08-18-25 | Title of the System |
| 08-18-25 | The system make an offline |
| 08-18-25 | Make an times new roman font |
| 08-18-25 | Make an justify every sentence |
| 08-18-25 | Name in to an alpahabeticak |
| 08-18-25 | Make good title for system |

*Table 3. Bus Ticketing and Booking System.*

**User Stories**

In the Offline Bus Ticketing System, different users have different needs. Passengers want to book tickets quickly, cancel them if they cannot travel, and receive a printed ticket with all the travel details.

Ticketing agents want a simple system where they can book tickets, see available seats, collect payments, cancel tickets, and give refunds when needed.

Managers want to check daily sales reports and see booking or cancellation trends so they can manage operations better.

Administrators need to manage users, update bus schedules, and make sure the system creates backups so that no data is lost.