Software Requirements Specification (SRS) for Parking Management System

1. Introduction

1.1 Purpose

The purpose of this document is to define the requirements for a Parking Management System that handles different parking categories, pricing, and business rules as described. The system will automate parking fee calculations, ticket management, and user billing based on valet, short-term, long-term, and economy lot rates.

1.2 Scope

This system will support various parking options such as valet, short-term, long-term (garage and surface), and economy lots. It will manage ticketing, parking fee calculation, and allow for lost ticket handling. Users will be able to pay for their parking based on their usage.

1.3 Audience

The intended audience for this document includes:

Project Managers

Developers

Testers

Business Analysts

1.4 Definitions

Valet Parking: A service where a valet parks the customer's car for a daily or hourly rate.

Short-Term Parking: Hourly parking for short durations.

Long-Term Parking: Parking for extended periods, available in both garage and surface lots.

Economy Lot Parking: Affordable parking options with lower daily rates.

Lost Ticket Fee: A fee charged when a parking stub is lost.

2. Overall Description

2.1 Product Perspective

This system will be part of a larger parking facility management solution, responsible for calculating parking fees based on duration, location, and applicable business rules.

2.2 Product Functions

Valet Parking Management

Short-Term Parking Fee Calculation

Long-Term Garage Parking Fee Calculation

Long-Term Surface Parking Fee Calculation

Economy Lot Parking Fee Calculation

Lost Ticket Fee Handling

2.3 User Classes and Characteristics

Parking Attendants: Manage parking tickets and payments.

Parking Facility Administrators: Configure pricing, run reports, and manage system settings.

Customers: Use the parking facilities and pay for their parking durations.

2.4 Assumptions and Dependencies

The system assumes real-time clock functionality to track parking durations.

System will interface with payment systems for transaction processing.

3. Functional Requirements

3.1 Valet Parking

FR-1: The system shall allow valet parking rates to be configured as:

$18.00 per day.

$12.00 for five hours or less.

FR-2: The system shall automatically determine the correct rate based on time parked.

3.2 Short-Term (Hourly) Parking

FR-3: The system shall charge $2.00 for the first hour.

FR-4: The system shall charge $1.00 for each additional half-hour.

FR-5: The system shall impose a daily maximum of $24.00 for short-term parking.

FR-6: The system shall display the current parking fee at any time.

3.3 Long-Term Garage Parking

FR-7: The system shall charge $2.00 per hour for long-term garage parking.

FR-8: The system shall impose a daily maximum of $12.00 for garage parking.

FR-9: The system shall charge a weekly maximum of $72.00, offering the 7th day free.

3.4 Long-Term Surface Parking (North Lot)

FR-10: The system shall charge $2.00 per hour for long-term surface parking.

FR-11: The system shall impose a daily maximum of $10.00 for surface parking.

FR-12: The system shall charge a weekly maximum of $60.00, offering the 7th day free.

3.5 Economy Lot Parking

FR-13: The system shall charge $2.00 per hour for economy lot parking.

FR-14: The system shall impose a daily maximum of $9.00 for economy lot parking.

FR-15: The system shall charge a weekly maximum of $54.00, offering the 7th day free.

3.6 Lost Ticket Fee

FR-16: The system shall charge a $10.00 fee when a parking ticket is lost.

4. Non-Functional Requirements

4.1 Performance Requirements

The system shall calculate and display parking fees within 2 seconds of user input.

4.2 Reliability

The system must ensure 99.9% uptime.

4.3 Usability

The system shall provide an easy-to-use interface with clear labels for each parking option.

The system shall display instructions for parking attendants and customers to understand the charges.

4.4 Security

The system shall secure all user transactions with SSL/TLS encryption.

Only authorized personnel shall have access to the system's administrative functions.

4.5 Maintainability

The system must allow for easy updates to the parking rates without requiring system downtime.

5. System Interface

5.1 User Interface

The system shall have a graphical interface for attendants to manage parking and payments.

The system shall provide a receipt or summary of charges for users upon exit.

5.2 Hardware Interface

The system will connect with ticket printers and card readers for transaction processing.

6. Acceptance Criteria

The system shall be considered functional when:

It accurately calculates fees based on the parking time and selected parking category.

The system can process payments and issue receipts.

It correctly applies weekly discounts and lost ticket fees.