# **Parking calculator**

This document serves as a comprehensive guide outlining the functional and non-functional requirements essential for the successful development and implementation of the Parking Calculator system.

The Parking Calculator project aims to address the challenges and complexities associated with parking management by providing users with an intuitive and efficient digital solution. By detailing the specific functionalities, features, and constraints of the system, this document serves as a blueprint for developers, designers, testers, and stakeholders involved in the project.

**Basic Functionalities:**

1.1. The system shall provide a user-friendly interface for customers to choose a parking lot and select the desired parking option.

1.2. The user interface shall include fields for inputting the entry date and time in the format MM/DD/YYYY, and the leaving date and time in the format MM/DD/YYYY.

1.3. The user interface shall allow customers to select the time using a time picker with options for AM and PM.

**Parking Lot +**

**Options:**

2.1. The system shall display the available parking lot options, including valet parking, short-term parking, long-term garage parking, long-term surface parking, and economy lot parking.

2.2. The system shall provide the corresponding rates for each parking option as described in the provided information.

**Entry Date and Time:**

3.1. The system shall allow the customer to input the entry date and time in the MM/DD/YYYY format.

3.2. The system shall validate the entry date and time to ensure it follows the required format.

**Leaving Date and Time:**

4.1. The system shall allow the customer to input the leaving date and time in the MM/DD/YYYY format.

4.2. The system shall validate the leaving date and time to ensure it follows the required format.

**Estimating Parking Costs:**

5.1. The system shall calculate and display the estimated parking costs based on the selected parking option, entry date and time, and leaving date and time.

5.2. The estimated parking costs shall be updated dynamically as the customer modifies the entry and leaving date and time.

**Lost Ticket Fee:**

6.1. The system shall apply a $10.00 lost ticket fee if the original parking stub cannot be produced during exit, except for valet parking.

6.2. The lost ticket fee shall be added to the final parking cost calculation when applicable.

**Weekly Discounts:**

7.1. The system shall provide a discount for weekly parking in long-term garage parking, long-term surface parking, and economy lot parking options.

7.2. The discount shall include a free 7th day of parking.

7.3. The system shall calculate the weekly parking cost accordingly and display it to the customer.

**Maximum Daily/Hourly Rates:**

8.1. The system shall enforce the maximum rates for daily and hourly parking options as specified in the provided information.

8.2. The maximum rates shall be applied when the parking duration exceeds the corresponding limit.

**Pricing Details:**

9.1. The system shall display the detailed pricing structure for each parking option, including the daily rates, hourly rates, and any additional conditions or discounts.

**Error Handling:**

10.1. The system shall display clear and descriptive error messages if the customer enters invalid or inconsistent information.

10.2. The error messages shall guide the customer to correct the input.

**Valet Parking:**

11.1. The system shall charge customers $18 per day for valet parking.

11.2. The system shall offer a rate of $12 for five hours or less for valet parking.

**Short-Term (hourly) Parking:**

12.1. The system shall charge customers $2.00 for the first hour of short-term parking.

12.2. The system shall charge an additional $1.00 for each additional half hour of short-term parking.

12.3. The system shall enforce a daily maximum rate of $24.00 for short-term parking.

**Long-Term Garage Parking:**

13.1. The system shall charge customers $2.00 per hour for long-term garage parking.

13.2. The system shall enforce a daily maximum rate of $12.00 for long-term garage parking.

13.3. The system shall offer a weekly rate of $72.00 for long-term garage parking, with the 7th day free.

**Long-Term Surface Parking (North Lot):**

14.1. The system shall charge customers $2.00 per hour for long-term surface parking in the North Lot.

14.2. The system shall enforce a daily maximum rate of $10.00 for long-term surface parking in the North Lot.

14.3. The system shall offer a weekly rate of $60.00 for long-term surface parking in the North Lot, with the 7th day free.

**Economy Lot Parking:**

15.1. The system shall charge customers $2.00 per hour for economy lot parking.

15.2. The system shall enforce a daily maximum rate of $9.00 for economy lot parking.

15.3. The system shall offer a weekly rate of $54.00 for economy lot parking, with the 7th day free.