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**User Requirements Document**

Bike Rental Web Application

# 1. Overview

# This document describes the user requirements for the bike and scooter rental web application. The platform is designed to offer a competitive and efficient means of transportation within the city, catering to the interests of various user groups.

# 2. Project Goals

## 1. Transportation

One of the primary goals of the project is to create a system that is convenient to use within the city. The system should provide a high level of accessibility to transport and favorable conditions for its use.

## 2. Make City Travels Easier

Our application aims to provide residents and visitors with easy-to-use transportation. This mode of transport serves as an excellent alternative to traditional options such as cars or public transportation due to its smaller size and high availability.

## 3. Affordable Rides

Our goal is to offer a competitive transportation service without compromising quality, utilizing different payment approaches. Various tariffs will be available for different categories, including pay-as-you-go without subscriptions, flexible subscription plans, and subsidized subscriptions for students or other groups. Additionally, we want to promote a healthy lifestyle by offering reduced rates for those using non-electric transport.

## 4. A System Accessible to Everyone

Our system is designed to be accessible from different devices, ensuring a high-quality service regardless of the user's device. This also includes the implementation of various payment systems.

# 3.1 Different Users – Different Needs

## 1. City Guests and Occasional Users

## **For these categories, the main priority is to obtain the service quickly and without unnecessary hassle. They need transport here and now, without long-term commitments. This should be ensured through a minimal number of steps required to access transport and support for multiple payment methods, primarily international payment systems and bank cards.**

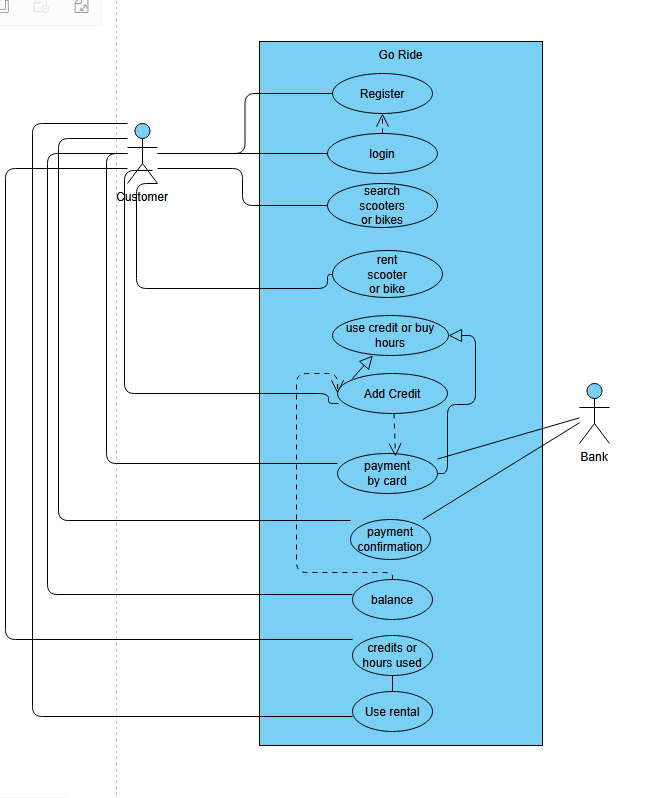
## 2. Eco-Friendly Users

We fully support the desire to reduce emissions and maintain a healthy lifestyle. For these users, we aim to offer better subscription conditions for specific types of transport that do not use electric motors. To encourage such users, we want to display statistics such as the amount of emissions they have avoided, calories burned, and other unique data relevant to the use of regular bicycles.

## 3. Special Groups

# **As a student community, we understand the challenges that a complex or expensive city transport system can create. Therefore, we want to offer special tariff plans for students who can verify their student status.**

# 3.2 Use Case Diagram for Customers Using The Website



Picture 3.1 – Use Case Diagram

# 3.3 Use Case Descriptions

| Use Case Id | 1 |
| --- | --- |
| Use Case Name | Adding credit |
| Created by | Yones Ananzeh |
| description | The user will try to add credit to their account the user will have to access the system |
| primary Actors | Customer |
| Secondary Actors |  |
| Pre-Conditions | 1. The Customer must be on the website. 2. The Customer must have an account. 3. The Customer must have a debit or credit card. |
| Post Conditions | 1. The Customer receives the credits. |
| Main Path | 1. The Customer accesses the website 2. The Customer logs in to the website 3. The Customer goes to their balance and adds credits 4. The Customer their payment card to pay for the credits 5. The bank confirms the payment 6. The Customer has added credits to their account |
| Alternate Path | 1. The Customer accesses the website 2. The Customer has no account 3. The Customer registers 4. The Customer goes to their balance and adds credits 5. The Customer their payment card to pay for the credits 6. The bank denies the payment 7. The Customer has no credits. |

Table 3.1 – Use Case diagram description 1

| Use Case Id | 2 |
| --- | --- |
| Use Case Name | Renting a scooter |
| Created by | Yones Ananzeh |
| description | The Customer will try to rent a scooter from the website. |
| primary Actors | Customer |
| Secondary Actors | Bank |
| Pre-Conditions | 1. The customer has access to the website 2. The customer must login 3. The customer must have goride credit or a payment card |
| Post Conditions | 1. The customer is able to use the rental |
| Main Path | 1. The Customer accesses the website 2. The Customer logs in to the website 3. The customer browses scooters 4. The customer rents a scooter. 5. The customer selects their scooter to rent. 6. The customer uses credit to rent the scooter. 7. The customer can now use the scooter. |
| Alternate path | 1. Steps 1-5 of the main path. 2. The Customer selects how much time they will use the scooter for 3. The customer uses payment card. 4. The bank confirms the payment. 5. The User can now use the scooter. |

Table 3.2 – Use Case diagram description table 2

# 4. Functionality

## Core features

### **1.Find Transport**

### **To ensure a great user experience, transport must be accessible, located in places where it is most needed, and available in sufficient quantity. Users should be able to easily find available transport nearby through an interactive map in the application.**

### **2. Login**

For already registered users, a quick login system should be implemented to access transport rental and payment functions. Users will need to enter the credentials they used during registration.

### **3. Registration**

### **To ensure a secure and reliable system, users must provide certain information that allows us to create an account and contact them if necessary. Registration enables users to rent transport, make payments, and access their personal accounts.**

### **4. Payment**

### **The system will support multiple payment methods to accommodate different user needs.**

### **5. Admin Panel**

### **A necessary tool for managing system operations, monitoring user statuses, and overseeing transport availability.**

### **6. Booking Process**

### **Users should be able to easily and quickly rent transport if they are registered and have completed payment. Users can also review their past transactions.**

### **7. Support**

Essential for resolving any issues that users may encounter while using our system.

## Extra features

### 1. **Subscription Plans**

To provide cost savings and more flexible services, users will be able to choose subscriptions for different time periods. This will reduce the number of transactions and include special subscriptions for students and eco-friendly users. For example, a user can subscribe for a whole day if they plan multiple trips, or for a month if trips are less frequent but regular

### 2. **Interactive Map**

The map will display the user's location in the city and the nearest transport stations. Users will be able to check the status and condition of available bicycles or scooters, as well as the types of transport available at each station. Additionally, the map will show the operational zones of the application.

### 3. **Cashback System**

Users who return transport to a designated station may receive a partial refund for their trip. This system ensures better availability of transport for others and makes it easier for the system to manage vehicle returns.

### 4. **Promocode Feature**

Users will have the option to apply discount codes to their accounts or specific trips.

### 5. **Referral System**

Registered users will be able to invite new users to the platform. Both the new user and the referrer will receive a reward for participation.

### 6. **Language Versions**

Since the target audience includes residents of Dublin and other major Irish cities, the application will support at least two languages: Irish and English. This will make it convenient for both locals and visitors.

### 7. **Multiple Support Channels**

Technical support will be expanded to include multiple communication channels, such as email, SMS, in-app messages, and messaging apps.

### 8. **Credit System**

To reduce the number of transactions, users will have the option to top up their in-app wallet instead of paying for each trip separately.

### 9. **Accessibility**

For users who do not have access to their smartphone camera, an alternative method of unlocking transport will be provided. Instead of scanning a QR code, users can enter a generated access code.

### 10. **Notification System**

A notification system will allow users to receive updates on special offers, new features, and important account updates via SMS, email, and in-app notifications.

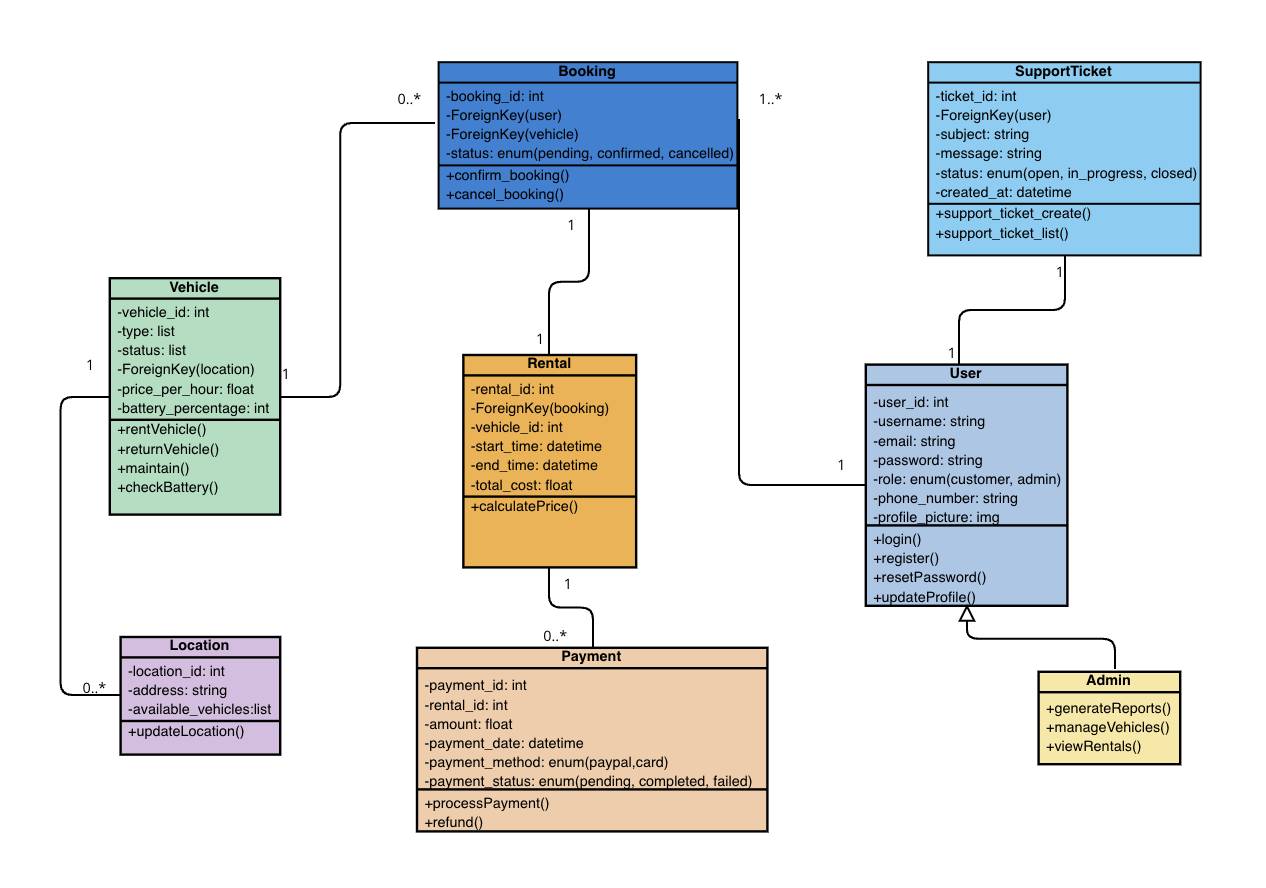
### **11. User Stats**

### **A personal dashboard will display detailed usage statistics, including trip duration, total distance traveled, amount of carbon emissions saved, calories burned, and a leaderboard ranking top riders in different zones.**

### **Example:**

John, a frequent e-bike user, checks his dashboard and sees that he has taken 150 rides, traveled 500 km, and saved 80 kg of CO₂ this year. His favorite transport type is an electric scooter, and his most active day was May 10th. At the end of the year, he receives a personalized Wrapped-style summary comparing his stats to other users.

# 5. Class Diagram



Picture 5.1 – Class diagram

# 6. Non-Functional Requirements

## 6.1 Performance & Scalability

* The system must handle high user traffic and support future expansion.
* Optimized for fast loading times and real-time updates.

## 6.2 Security & Compliance

* End-to-end encryption for user data & transactions.
* GDPR compliance for data protection.
* Regular security audits to prevent vulnerabilities.

## 6.3 User Experience (UX) & Accessibility

* Mobile-first design for seamless access across devices.
* Intuitive user interface for effortless navigation.
* Accessibility features to accommodate users with disabilities.

# 7. Project Feasibility

## 7.1 Timeline & Development Plan

* Three-month development period (Jan 27 – Apr 28) with a prototype demo every 3 weeks.
* Prioritize core features (authentication, rentals, payments, mapping) before enhancements.
* Development milestones:
  + Week 3: Basic booking system.
  + Week 6: Payment integration.
  + Week 9: Admin dashboard & analytics.

## 7.2 Potential Risks & Contingency Plans

1. Limited Team Capacity
   * + Risk: A high workload could lead to burnout.
     + Solution: Focus on MVP features & ensure knowledge-sharing within the team
2. Technical Challenges
   * + Risk: Potential issues with database, APIs, or security.
     + Solution: Allocate debugging time & maintain thorough documentation.
3. Strict Deadlines & Unexpected Delays
   * + Risk: Bugs or unforeseen problems affecting timelines.
     + Solution: Include buffer time in the final weeks to resolve last-minute issues.
4. User Testing & Feedback Implementation
   * + Risk: Major usability issues discovered late in development.
     + Solution: Conduct early-stage testing with simulated users.