

## Summer Internship (2024)

# Parking Management System

### Tools and Technologies

#### **Frontend Development**

Framework: React

Routing: React Router

State Management: Redux

HTTP Requests: Axios

#### **Backend Development**

Framework: Django

Database: MongoDB with Mongoose / MySQL

Authentication: JSON Web Tokens (JWT)

**RealTime Data Handling** : *Socket.io* for real time communication

**User Authentication and Security:** *HTTPS*, Bcrypt for password hashing

**Design and Prototyping Tool:** *Figma* for designing and prototyping the app interface

**Version Control** ➤ **Git:** A distributed version control system for tracking changes in source code.

**(IDE)** ➤ **Visual Studio Code:** A source code editor with support for JavaScript, React Native, and Node.js.

Tools and technology to be used might change later, as per ease

# ( User Stories )

## Admin Panel User Stories

### **1: Admin Login**

As an admin, I want to login in the admin panel so that I can access the system features.

#### **Acceptance Criteria 1:**

- Given: The admin has access to the login screen of the admin panel.
- When: The admin enters a valid email and password.
- Then: The admin should successfully be logged in to the admin panel.

#### **Acceptance Criteria 2:**

- Given: The admin has access to the login screen of the admin panel.
- When: The admin enters an invalid email or password.
- Then: The admin should not be logged in to the admin panel.
- And: A relevant error message should be displayed.

### **2: Admin Sign-Up**

As an admin, I want to sign-up so that I can create an admin account.

#### **Acceptance Criteria 1:**

- Given: The admin has access to the sign-up screen of the admin panel.
- When: The admin enters all required details correctly.
- Then: The admin account should be successfully created.

#### **Acceptance Criteria 2:**

- Given: The admin has access to the sign-up screen of the admin panel.
- When: The admin leaves required fields empty or enters invalid information.
- Then: The admin account should not be created.
- And: A relevant error message should be displayed.

### **3: Admin Logout**

As an admin, I want logout so that I can securely end my session.

#### **Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin clicks the logout button.
- Then: The admin should be successfully logged out of the admin panel.
- And: The admin should be redirected to the login screen.

#### **4: View All Users**

As an admin, I want to view the list of all users so that I can manage their accounts.

##### **Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin navigates to the user management section.
- Then: A list of all users should be displayed.
- And: Each user entry should include their name, email, and status (active/inactive).

#### **5: Add New Users**

As an admin, I want to add new users so that they can use the parking facilities.

##### **Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin enters the required user details and submits the form.
- Then: A new user account should be created.
- And: The new user should be added to the user list.

##### **Acceptance Criteria 2:**

- Given: The admin is logged in to the admin panel.
- When: The admin enters incomplete or invalid user details.
- Then: The user account should not be created.
- And: A relevant error message should be displayed.

#### **6: Edit User Information**

As an admin, I want to edit user information so that I can update their details when necessary.

##### **Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin updates the user information and saves the changes.
- Then: The user information should be updated successfully.
- And: The updated information should be reflected in the user list.

##### **Acceptance Criteria 2:**

- Given: The admin is logged in to the admin panel.
- When: The admin enters invalid information while editing user details.
- Then: The user information should not be updated.
- And: A relevant error message should be displayed.

#### **7: Delete User Accounts**

As an admin, I want to delete user accounts so that I can remove inactive or unauthorized users.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin selects a user and clicks the delete button.
- Then: The user account should be removed from the system.
- And: The user should no longer appear in the user list.

**8: View Available Parking Slots**

As an admin, I want to view the number of available parking slots so that I can monitor capacity.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin navigates to the parking slot management section.
- Then: The number of available parking slots should be displayed.

**9: View Filled Parking Slots**

As an admin, I want to view the number of filled parking slots so that I can understand current usage.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin navigates to the parking slot management section.
- Then: The number of filled parking slots should be displayed.

**10: Assign Parking Slots to Users**

As an admin, I want to assign parking slots to users so that I can manage parking space effectively.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin assigns a parking slot to a user and saves the changes.
- Then: The parking slot should be assigned to the user successfully.

**Acceptance Criteria 2:**

- Given: The admin is logged in to the admin panel.
- When: The admin tries to assign an already filled slot.
- Then: The parking slot should not be assigned.
- And: A relevant error message should be displayed.

**11: Change Parking Slot Status**

As an admin, I want to change the status of parking slots (available/filled) so that I can reflect the real-time parking situation.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin updates the status of a parking slot.
- Then: The status of the parking slot should be updated successfully.
- And: The updated status should be reflected in the parking slot list.

**12: Reserve Slots for VIP Users**

As an admin, I want to reserve slots for VIP or special users so that I can accommodate important guests.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin marks a slot as reserved for a VIP user.
- Then: The slot should be marked as reserved successfully.
- And: The reserved status should be reflected in the parking slot list.

**13: View Detailed User Information**

As an admin, I want to view detailed information of users (e.g., name, contact info, vehicle details) so that I can assist them better.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin selects a user from the user list.
- Then: The detailed information of the user should be displayed.

**14: Track Vehicle In/Out Times**

As an admin, I want to track in/out times of vehicles so that I can monitor parking usage and durations.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin navigates to the parking activity section.
- Then: The in/out times of vehicles should be displayed.

**15: Search for Users**

As an admin, I want to search for users by name or vehicle number so that I can quickly find their information.

**Acceptance Criteria 1:**

- Given: The admin is logged in to the admin panel.
- When: The admin enters a user's name or vehicle number in the search bar.
- Then: The relevant user details should be displayed.

## **User Panel User Stories**

### **1: User Login**

As a user, I want login so that I can access my account and parking details.

#### **Acceptance Criteria 1:**

- Given: The user has access to the login screen of the user panel.
- When: The user enters a valid email and password.
- Then: The user should successfully be logged in to the user panel.

#### **Acceptance Criteria 2:**

- Given: The user has access to the login screen of the user panel.
- When: The user enters an invalid email or password.
- Then: The user should not be logged in to the user panel.
- And: A relevant error message should be displayed.

### **2: User Sign-Up**

As a user, I want a sign-up feature so that I can create a user account.

#### **Acceptance Criteria 1:**

- Given: The user has access to the sign-up screen of the user panel.
- When: The user enters all required details correctly.
- Then: The user account should be successfully created.

#### **Acceptance Criteria 2:**

- Given: The user has access to the sign-up screen of the user panel.
- When: The user leaves required fields empty or enters invalid information.
- Then: The user account should not be created.
- And: A relevant error message should be displayed.

### **3: User Logout**

As a user, I want a logout feature so that I can securely end my session.

#### **Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user clicks the logout button.
- Then: The user should be successfully logged out of the user panel.
- And: The user should be redirected to the login screen.

#### **4: View Profile Information**

As a user, I want to view my profile information so that I can see my account details.

##### **Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user navigates to the profile section.
- Then: The profile information should be displayed.

#### **5: Edit Profile Information**

As a user, I want to edit my profile information so that I can keep my details up-to date.

##### **Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user updates their profile details and saves the changes.
- Then: The profile details should be updated successfully.

##### **Acceptance Criteria 2:**

- Given: The user is logged in to the user panel.
- When: The user enters invalid information while editing profile details.
- Then: The profile details should not be updated.
- And: A relevant error message should be displayed.

#### **6: Check Parking Slot Availability**

As a user, I want to check for parking slot availability so that I can find a place to park my vehicle.

##### **Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user navigates to the parking slot availability section.
- Then: The available parking slots should be displayed.

#### **8: View Slot ID of Available Parking Spaces**

As a user, I want to see the slot ID of available parking spaces so that I can locate them easily.

##### **Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user navigates to the parking slot availability section.
- Then: The IDs of available parking slots should be displayed.

#### **9: Reserve a Parking Slot**

As a user, I want to reserve a parking slot so that I can ensure a spot is available when I arrive.

**Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user selects an available parking slot and confirms the reservation.
- Then: The parking slot should be reserved for the user.

**10: View Reserved Slot Details**

As a user, I want to view the details of my reserved slot so that I know exactly where to park.

**Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user navigates to the reservations section.
- Then: The details of the reserved slot should be displayed.

**11: View Parking History**

As a user, I want to view my parking history (in/out times, slot used) so that I can keep track of my parking activities.

**Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user navigates to the parking history section.
- Then: The parking history should be displayed.

**12: View Parking Duration and Charges**

As a user, I want to view my parking duration and charges so that I can keep track of my expenses.

**Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user navigates to the parking duration and charges section.
- Then: The parking duration and charges should be displayed.

**13: Access FAQ Section**

As a user, I want to access a FAQ section so that I can find answers to common questions quickly.

**Acceptance Criteria 1:**

- Given: The user is logged in to the user panel.
- When: The user navigates to the FAQ section.
- Then: The frequently asked questions and answers should be displayed.