WEB APPLICATION PROJECT

Project Name: SmartParking.

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Project Scope: This project intends to give a solution to parking spaces in a specific parking lot, depending on different places, timing and grades, within a city.

1. **Introduction**

The idea behind this project is to help different users of the application to find a parking space, retain customers and attract new ones. The application can be used by citizens of a particular city and the new upcoming people to that city.

Every user is entitled to their own profile, where it can find any previous and existing protonation made for a parking space, besides that, the user is also able to delete the reservation made. Each reservation comes with a specific price depending on the variants.

Objectives:

- Provide a user-friendly interface for searching and locating free parking spots in the city.
- Display real-time information about parking availability and pricing.
- Enable users to filter and sort parking spots based on their requirements (distance, price, amenities, etc.).
- Allow users to reserve parking spots in advance (if supported by the system).
- By achieving these objectives, the web application aims to enhance the overall parking experience in our city and reduce the time and frustration associated with finding a suitable parking spot.

2. **User Roles and Permissions:**

The web application supports different user roles, including regular users, administrators, and parking lot owners. Each role has specific permissions and access levels within the system. Regular users can search for parking spots, view prices, and make reservations. Administrators have additional privileges for managing parking data and user accounts. Parking lot owners can add and update information about their parking facilities.

3. **Technologies Used**

For the development of this project, various technologies were employed for the backend, frontend, and database. Below are the main technologies used:

Backend:

- Programming Language: JAVA
- Framework: Spring
- Web Server: Apache
- Authentication and Authorization: Spring REST Framework
- Third-party APIs and Libraries: [List any third-party APIs or libraries used for additional functionality]
- Mapping Tool: Hibernate;

Frontend:

- Programming Languages: HTML, CSS, JavaScript
- Framework: React.js
- UI Framework: Ant Design
- State Management: Redux or React Context API
- HTTP Library: Axios or Fetch API

Database:

- Database Management System: PostgreSQL

Conclusion

In this project documentation, we have presented the development of a web application for finding free parking spots in our city, including the ability to view prices for each spot. Throughout the development process, various technologies were utilized, including Java with the Spring framework for the backend and HTML, CSS, and JavaScript with the React.js framework for the frontend, and a database management system such as PostgreSQL for data storage.

The web application aims to provide users with a convenient solution for finding available parking spots, reducing the challenges associated with parking in urban areas. By incorporating real-time information and user-friendly features, we aim to enhance the overall parking experience for residents, commuters, and visitors.

Going forward, there is room for future enhancements and additional features such as integration with payment gateways for reservation and payment of parking spots, integration with mapping services for improved navigation, and further optimization of the search algorithm to provide more accurate and relevant results.

Overall, the development of this web application has been a significant step towards addressing the parking challenges in our city and providing a valuable resource for users in their search for free parking spaces.