Abstract: RentOBike Web Application

Introduction

In this digital time, we are looking for new things or innovations. In the field of transportation, we also want some interesting things. RentOBike is the innovation that work as a platform. It provides the web-based solution in the bicycle rental market. This platform also addresses the demand for eco-friendly travel. The aim of RentObike is to develop a user-friendly website. The goal of the website is to connect bicycle owners with the renters. Owners can add their bicycles for rent on this website. This website provides a platform who are in the search or need of the bicycle, whether for lack of vehicle, desire for a leisurely ride, or exploration by tourists. Renters can book a bicycle for a duration ranging from one day to one week.

Project Objective

The primary goal of RentOBike is to offer an accessible mode of transportation. The transportation platform that is efficient and environmentally perfect. The platform embarks web technologies. It targets two main user groups: bicycle owners and renters.

RentObike provides a platform to the bicycle owners to add or list their bicycles for a rent. Owners can manage bookings without any cost. On the other hand, for renters. It ensures a hassle-free renter experience. Renters can find the bicycles that suitable for them or they like to ride. They can book it online for free. Moreover, renters can enjoy the ride without paying any cost.

Development Methodology and Adjustments

In this project, we are using the Agile development methodology. This methodology allows for iterative development. It enables continuous feedback and adaptability. In this project, we are using the Flask framework. Because this framework provides simplicity and flexibility. It is served as the backbone of the application. The choice of this framework supports rapid development and deployment. The key features of the website are developed in series. These features include user authentication and bicycle listing. We also developed the booking management and user reviews. All features are refined based on user feedback.

While creating the website, we decided to plan on feature prioritization. Because, of some resource constraints we are not adding some features in the project that discussed in conception and development phase. For example, the search functionality, in which users can find bicycles by location and type may include in updated version after the feedback of the users. Advanced data encryption for transactions security also put aside and not transaction or payment method involved in the platform. Moreover, the forgot username functionality also we put aside for this project right now.

The project is aimed to meet the primary need of the users. The performance optimization and scalability are the key considerations. The initial phase of the website is to focus on creating a functional and secure user experience.

Technology Stack

To develop the website, we used HTML, CSS, and Python. It embarks the Flask framework for the backend server. For the database management, we use the SQLite, it provides a lightweight and efficient solution for storing user and bicycle data. For the application's security purposes we use the Werkzeug for secure password handling and SQLAlchemy for seamless database operations. Moreover, we craft the frontend design of the website with the help of HTML and CSS, it ensures the accessibility across the devices.

Implementation and Reflections

The development process of the website is included with several critical stages. These stages are requirement analysis and system design. There are other stages like implementation and testing is also there. The app.py file is the core file of the application. It arranges the user interactions and database operations. The home.html and style.css files are defining the user interface. It also offering the visually appealing and user-friendly experience.

The key lessons we can learn from the project. the major lesson is the importance of the clear requirement definitions. The other lesson is the effectiveness of iterative development. The value of the user feedback that is crucial to shape a successful application.

Conclusion

The website RentOBike is a digital solution. Because it transforms the traditional services. The project addresses a practical need in urban mobility. It also contributes to the environmental sustainability. It is achieved by promoting bicycle usage. As the website is move forward with the continuous improvement, and it is a priority. Expansion of its features will also remain a priority so it ensure that the platform evolves. It aims to meet the dynamic needs of its users.