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Weather.com

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Introduction

The purpose of this article is to explain in greater detail the elements to be taken into account for the project of a climate application, taking into account certain requirements, mainly the user stories, on which the methods and classes are initially defined and the construction of the respective diagrams on which the project of this climate application will be carried out is carried out.

This project is designed to be carried out in a period of two months in which it will go into greater depth on the topic, with the guidelines given by the teacher they will be taken into account for its realization, it will also progress progressively according to the knowledge that will be acquired in each of the classes with which we will delve into different topics for the programming of this application.

The application will consist of an algorithm that will allow user logging, which the user will be able to automatically see the weather status of their current location, the weather status of other locations as they choose on an interactive map, additional weather details as they choose. decide, and real-time notifications about significant changes regarding the climate.

It will mainly be focused on the development of the backend and a basic interface, connected to a database with said climate data.

This program is a great solution to some real-life problems since it makes it easier for us to have predictions of the future climate, to know the climate that is occurring at the time of the observation with some additional details included, which can be obtained to take into account to be able to make certain decisions according to what is shown in the application.

Methods

For the development of our weather application, we have followed an object-oriented approach, using the Python programming language. Next, we will describe the methods and techniques used during the development process:

Technology Selection:

Python was selected as the primary programming language due to its versatility, readability, and extensive community support. The following Python libraries were used: Faker: It will be used to generate fictitious data for the development and testing of the application. FastAPI: It will be used for the development of high-performance web APIs, which will allow easy integration with the OpenWeatherMap API and the creation of endpoints for the application's functionalities. SQLAlchemy: It will be used to interact with the database, facilitating the management and manipulation of user data.

Application Architecture:

A monolithic architecture was chosen for the weather application, meaning that all application components are integrated into a single system. This simplifies the initial development and deployment of the application, resulting in a faster and less complex process.

OpenWeatherMap API Integration:

The OpenWeatherMap API will be used to obtain accurate and up-to-date weather data for the application. This will be achieved by integrating HTTP requests to the OpenWeatherMap API within our application.

Functional Development:

The following main functionalities of the application will be developed: Display of current weather: Methods will be created to obtain and display current weather data, including temperature, weather conditions, and wind chill. Weather forecast: Methods will be implemented to obtain and display the future weather forecast for a specific location. User Registration: Methods will be developed to allow users to register in the application, providing basic information such as name, password and location. Viewing users (for administrators): Methods will be created so that administrators can view and manage the list of users registered in the application.

Data Management and Persistence:

SQLAlchemy will be used to handle the interaction with the database. Methods will be implemented to store, retrieve, update and delete user data in the database, ensuring adequate persistence of user information.

Bibliography

[1] *¿Qué son las reglas de negocio? — IBM*. IBM in Deutschland, Österreich und der Schweiz. URL: https://www.ibm.com/es-es/topics/business-rules (visitado 10-04-2024).

[2] C. Sierra. *ud-public/courses/advanced-programming/project/Paper Guidelines.pdf at main · EngAndres/ud-public*. GitHub. URL: https://github.com/EngAndres/ud-public/blob/main/courses/advanced-programming/project/Paper_Guidelines.pdf (visitado 10-04-2024).

[3] *Todos los diagramas UML. Teoría y ejemplos*. DiagramasUML.com. URL: https://diagramasuml.com/ (visitado 10-04-2024).

[3] [1] [2]