GeoData Retrieval and Visualization Project

Overview

This project involved writing Python scripts to retrieve, process, and visualize geographic data. The goal was to understand and implement a workflow that takes textual location data, converts it into geographical coordinates using a web API, and then plots those locations on a map.

Technologies Used

- Python

- SQLite

- API requests to a geocoding service

- HTML/Javascript for map visualization

Challenges and Learning

One of the main challenges was ensuring the accurate conversion of location names to geographical coordinates. This required understanding how to interact with a web-based geocoding API and process JSON data in Python. Error handling was essential to manage potential issues such as rate limiting or missing data. Through this project, I learned about managing data flow from a web service, data persistence in databases, and the basics of web development for visualization.

Results

The scripts successfully generated a database of locations and corresponding geographical data. The final output was an interactive map visualizing all the locations stored in the database, which can be viewed by opening the `where.html` file in a web browser.

How to Run the Project

1. Execute `geoload.py` to collect geodata from the API and store it in `opengeo.sqlite`.

2. Run `geodump.py` to read the database and create `where.js`.

3. Open `where.html` in any web browser to see the visual map with the data points.

Future Improvements

The project has potential to be expanded with richer geographic datasets, include more advanced mapping features, or even refactor the code for better performance and scalability.