Homework

Build a React Web App with a Backend

Thank you for your interest in the web developer position at our company! We're excited to see what you can create. Please read the following instructions carefully before starting your project.

Project Overview

You are tasked to build a web application using React for the frontend and FastAPI for the backend. The web app should display data fetched from CSV files dataset via the FastAPI backend.

Base Requirements

We are providing you with two datasets:

- **file 1**: Contains organizations, each with a set of characteristics.
- **file 2**: Contains time series data, which can be separated by organization (the same ones as in the previous file).

Features Required

- The app should display all the organizations.
- There should be a selector or buttons that allow the user to specify an organization. When an organization is selected, the timeseries data for that organization should be displayed.

Tech Requirements

1. **Frontend**:
    - You must use React to build the frontend of the web application.

- You are free to choose any additional libraries or frameworks you deem necessary.
- Your frontend should make API calls to the backend to fetch and display data.

2. **Backend**:
   - You must use FastAPI to build the backend.
   - Implement an API endpoint(s) that fetches data from the files provided.
   - Ensure proper error handling and validation in your API endpoints.
3. **Database**:
   - You must retrieve the data from the CSV files we're providing.
   - More advanced solutions are encouraged (refer to database bonus).

Bonus

The following list isn't required but could improve your application, as it represents features commonly used in our apps.

1. **Frontend**:
   a. Display a map using a satellite layer as the base layer.
   b. Incorporate an interactive chart featuring time series data.
2. **Database**:
   a. Use an SQL database to store the data provided.
      i. Design the necessary database schema to support the features of your web application.
      ii. Document the database schema and include instructions for setting up the database.
      iii. You are free to use a local DB, cloud-based, etc. As long as you provide the instructions to set it up and run it.
3. **Data Analysis**:

a. Analyze and visualize the data we provide, then summarize your interpretation in a paragraph of no more than 10 lines. Submit this summary via email or in a separate file; it's not part of the app. If necessary, you can supplement your analysis with an image.

Additional Guidelines

- **Technology Stack**: You have the freedom to choose additional tools, libraries, or frameworks beyond React and FastAPI. Justify your choices in a separate section of your README.
- **Documentation**: Provide clear documentation on how to run your project locally. Include any setup instructions, dependencies, and configuration steps.
- **Git Repository**: Submit your project as a Git public repository hosted on GitHub and share it with the team for evaluation.

Submission

- **Deadline**: Please submit your project within 72 **hours** of receiving this homework.
- **Contact**: If you have any questions or need clarification on the requirements, feel free to reach out to **[tomas@bloomalert.com, andres@bloomalert.com, saldivia@bloomalert.com, rudy@bloomalert.com]**.

Evaluation Criteria

Your project will be evaluated based on the following criteria:

1. **Functionality**: Does the web application meet the specified requirements? Is the data fetched and displayed correctly?
2. **Code Quality**: Is the code well-structured, readable, and maintainable? Are best practices followed?
3. **Documentation**: Is the README clear and informative? Are setup instructions provided?
4. **Design and UI/UX**: Is the user interface intuitive and visually appealing?

5. **Performance**: Does the application perform well, considering factors like loading times and responsiveness?
6. **Execution time: time used to develop this app.**