

Green Resolution

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Climate change is the biggest challenge for humankind in the 21st century.

Cost calculators can help establish the business case associated with climate-related decisions, such as reducing energy costs, taking advantage of government incentives, and reducing carbon tax exposure.

Green Resolution has developed a tool to aid users in making decisions that help reduce climate risks or capture opportunities through adaptation or mitigation activities.

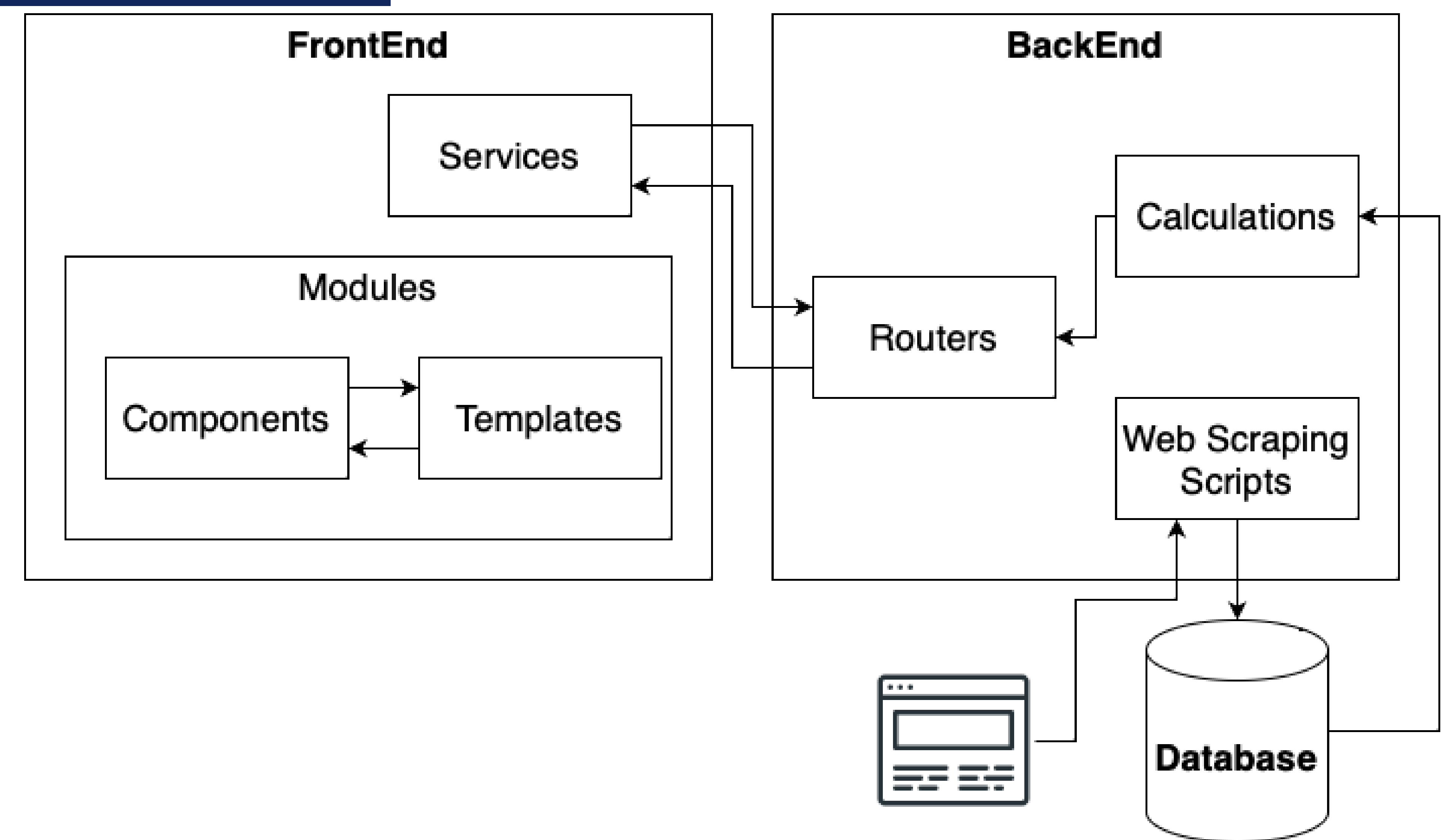
Introduction

As we are all aware, climate change is the biggest challenge for humankind in the 21st century. With this project we have tried to create a unified platform where the climate information is presented to users in a meaningful way and users can make informed decisions.

Objective

To create a web application that will take users on a journey to collect information about them and their investment plans and provide a comprehensive report regarding the financial and climate impacts of the investment.

Software Design



Database

- MangoDB

Backend

- Python application
- Python web scraping scripts
- FastAPI

Frontend

- React Application
- Graph Library - Recharts

Research

Green Resolution had the opportunity to be flexible in our product, in order to build what we believe would add the most value for both our team as well as for our sponsors and future end users. We each completed our own research individually, and would come together on a regular basis to discuss our findings and synthesize them together. This allowed for us to gain new, deep perspectives on the subject at hand. We had a specific focus on cross-referencing sources, discussing and respectfully debating ideas as a team, completing discovery as individuals, and making sure our sponsors and advisors were up to date at all times.

Methods

Green Resolution employed the following methods to ensure efficient team work and project success:

- **Split research topics individually** to focus on a specific area, and then verified assumptions with each other
- Conducted **weekly team update meetings**, discussed how to split up tasks and new findings to present to the sponsors
- Managed group work through **Agile software development** and completed tasks in three sprints
- Utilized **GitHub** for version control and verified our work through requiring at least **two approvals** for every pull request

Challenges

While working on this project, we faced a variety of challenges both in the research, design, and implementation stages. Some examples include:

- Being restricted to working with **public data only** and having to evaluate and test multiple data sources
- Difficulty in finding **relevant literature and academic sources** for our research, and as a result having to take extra steps to verify our assumptions
- Determining the **optimal database design** to store web scraped data that could be easily retrieved
- Addressing **duplicate data entries** and mitigating their impact on the overall project success and user experience