Team *Shrimp Crackers*
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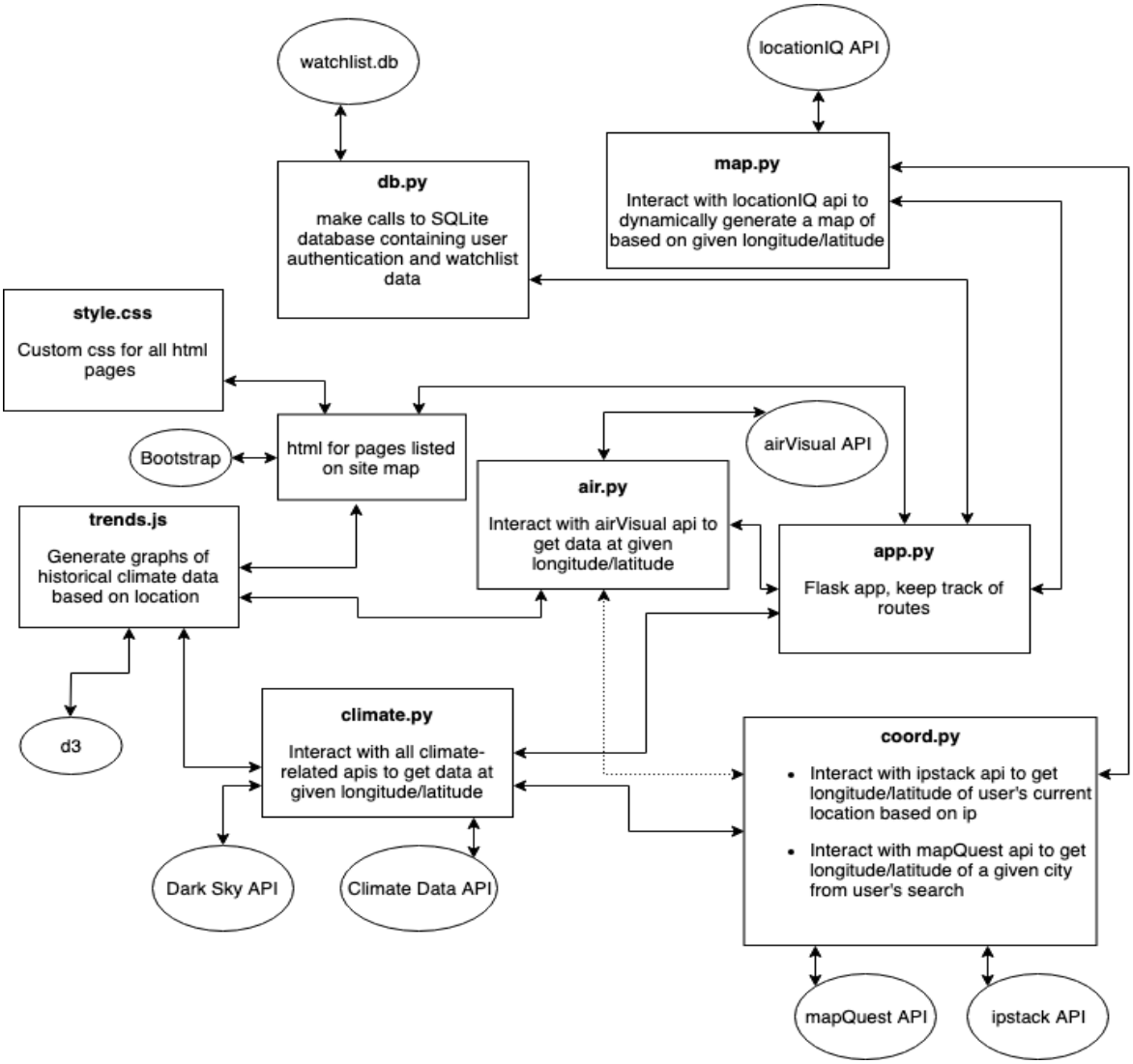
Soft Dev pd8

Climate Crackers

OVERVIEW

Climate Crackers is a data visualization website that allows users to explore trends in climate change in the U.S. Our landing page will be a map of the U.S. showing the percent change of the average temperatures from previous years using a color gradient. Users will be able to pick a season and year. Users will also be able to input a location (city or town name) to search for the corresponding climate data, like average temperatures and days of precipitation for each year in the past century. If the user is signed in, they will be able to save these locations onto their watchlist.

COMPONENT MAP



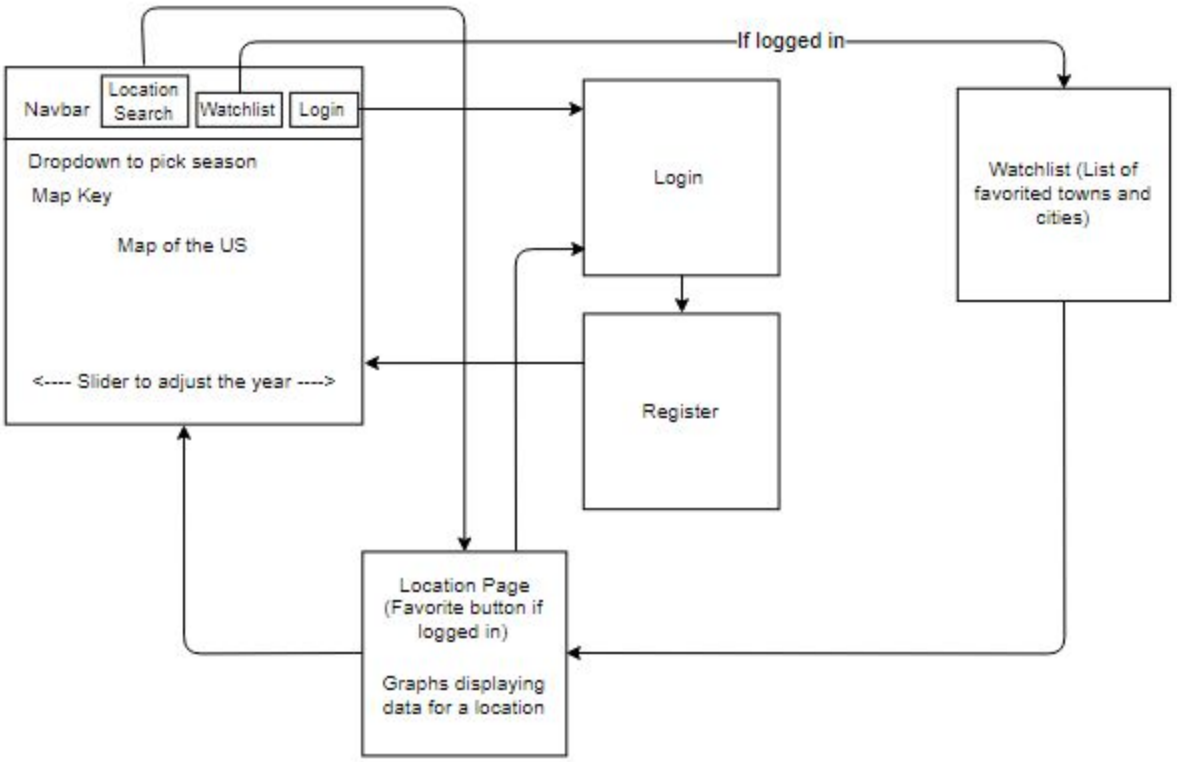
FRONT END FRAMEWORK: BOOTSTRAP

- Bootstrap allows for a clean and adaptive layout that can handle changes to be made.
- Reliability since the team is more familiar with Bootstrap than Foundation.
- Our website will not need many grid layouts nor any switches that Foundation is good for

APIs

- Climate Data Online → provides historical climate data and averages for cities (point person: Puneet)
- MapQuest → finds latitude/longitude based on city name or zip code (point person: Sophia)
- LocationIQ Api → dynamic map based on longitude and latitude (point person: Joyce)

SITE MAP



DATABASE SCHEMA

User Information

Column	User	Password
Data Type	Text Primary Key	Text

Watchlist - Holds a user and the location the user adds to the watchlist

Column	User	Location
Data Type	Text Primary Key	Text

Features

- If a user is not logged in, they can only access the homepage, location-specific information pages, login page, and register page.
- The homepage displays overall climate data for the U.S. using Climate Data API as well as a map of the U.S.
- Users can search for a specific location in the U.S. using the search bar in the navbar and be directed to an information page to see climate data at those locations
    - Information pages contain the predicted (future) climate data, current climate data, historical climate data, and a button to add the location to their watchlist.
- When the user searches for a specific location in the U.S., it will be converted to latitude and longitude values for getting data from APIs
- When a user registers, they will have access to their watchlist.
    - Allow users to save locations and access them at another login time
- All pages will have a nav bar that links to the homepage, search bar for locations, and either the login/register page or the logout button.

ROLES

Project Manager - Puneet Johal

- Make sure the group is consistently working on the project
- Handle coding tasks as necessary for both backend and front end, with a focus on d3.
- Update and maintain the design document
- Make sure that the group is adhering to the design document
- Update and maintain the devlog

Database / Backend Technicians - Joyce Liao / Sophia Xia

- Create database system following the data schema outlined above in sqlite3
- Create functionality to access, add and modify the database
- Make the database compatible and accessible with the frontend in app.py

Frontend Technicians - Tania Cao

- Construct HTML web pages that will process user input in the backend
- Render the web pages when requests are sent
- Make the front end compatible with the backend with jinja3 for flask functionality

STRETCH GOALS

- Users will also be able to view air quality data that we will get from the Airvisual API, which will provide air quality rating based on longitude and latitude
- Users will be able to click on the map and be directed to the location-specific information page for the location that they clicked on
- Users will be auto-directed to the location-specific login page for their current location based on their IP address
    - We will need to use the Ipstack Api, which provides longitude and latitude based on IP address
- A carbon emissions calculator
    - estimate the user's contribution to carbon emissions based on miles driven, pounds of meat purchased, etc.
    - Record the data in a database and display in the format of a pie chart so the user can see which activity contributes the most to carbon emissions.
    - View previous data to view changes in the user's contribution over time.
    - Tracking their data will give users a reason to regularly come back to the website and stay aware of climate change.
- Extend functionality to global level
- Users can also view political climate in the area and how representatives stand on climate legislation
    - This may influence them to take political action