Team *Shrimp Crackers*
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Soft Dev pd8
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Climate Crackers

OVERVIEW

Climate Crackers is a data visualization website that allows users to explore trends in climate change in the U.S. By default, information on the climate in the user's current location will be displayed on the front page. However, users will also be able to input a different location to search for the corresponding climate data. If the user is signed in, they will be able to save certain locations onto their watchlist.

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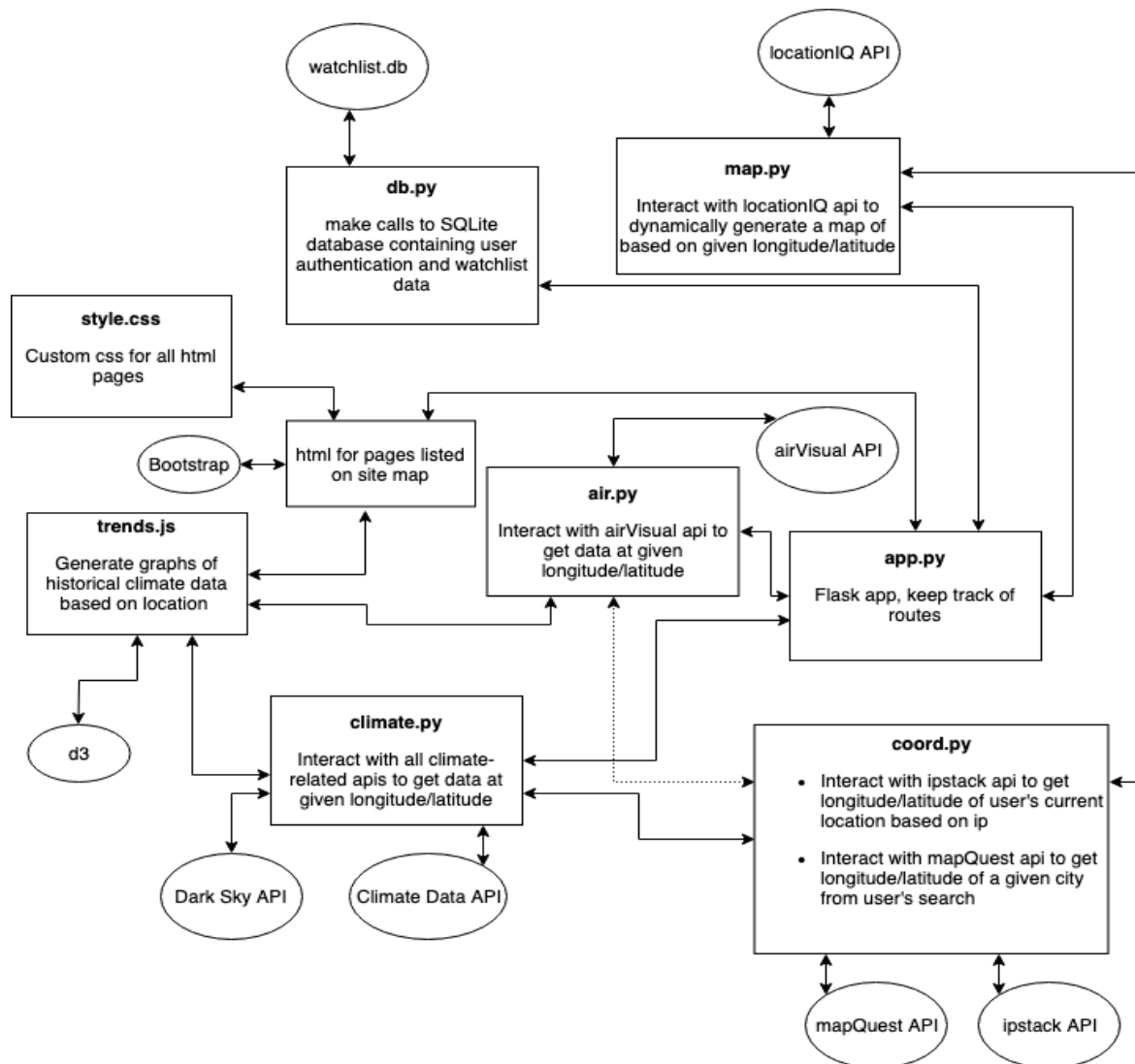
FRONT END FRAMEWORK: BOOTSTRAP
- Bootstrap allows for a clean and adaptive layout that can handle changes to be made.
- Reliability since the team is more familiar with Bootstrap than Foundation.
- Our website will not need many grid layouts nor any switches that Foundation is good for

APIs
- Dark Sky Api → provides past and expected future data on weather
- Climate Data Api → provides past and expected future carbon emission levels
- Ipstack Api → provides longitude and latitude based on IP address
- LocationIQ Api → dynamic map based on longitude and latitude
- Airvisual API → air quality rating based on longitude and latitude
- MapQuest → finds latitude/longitude based on city name or zip code

SITE MAP
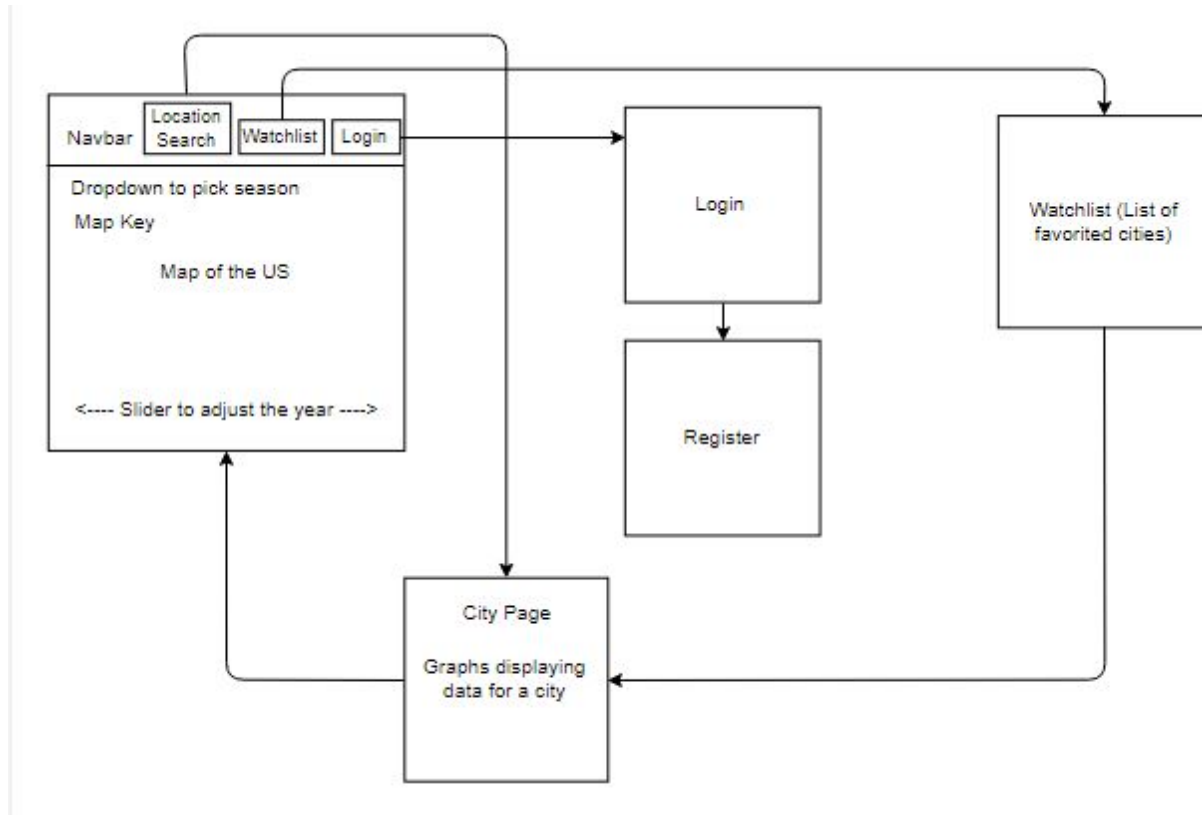
DATABASE SCHEMA

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	City/Town

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 click on a specific region in the U.S. on the map 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.
- Anywhere on the website, the user can search for a specific location in the U.S., which will then be converted to latitude and longitude values for getting data from APIs
    - Users are directed to the location information page as they would by clicking on the map on the homepage
- 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, the login/ register site, and logout site.

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 frontend compatible with the backend with jinja3 for flask functionality

STRETCH GOALS

- 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