Team Atmosphere

Alice Ni, Moody Rahman, Joseph Yusufov, David Wang

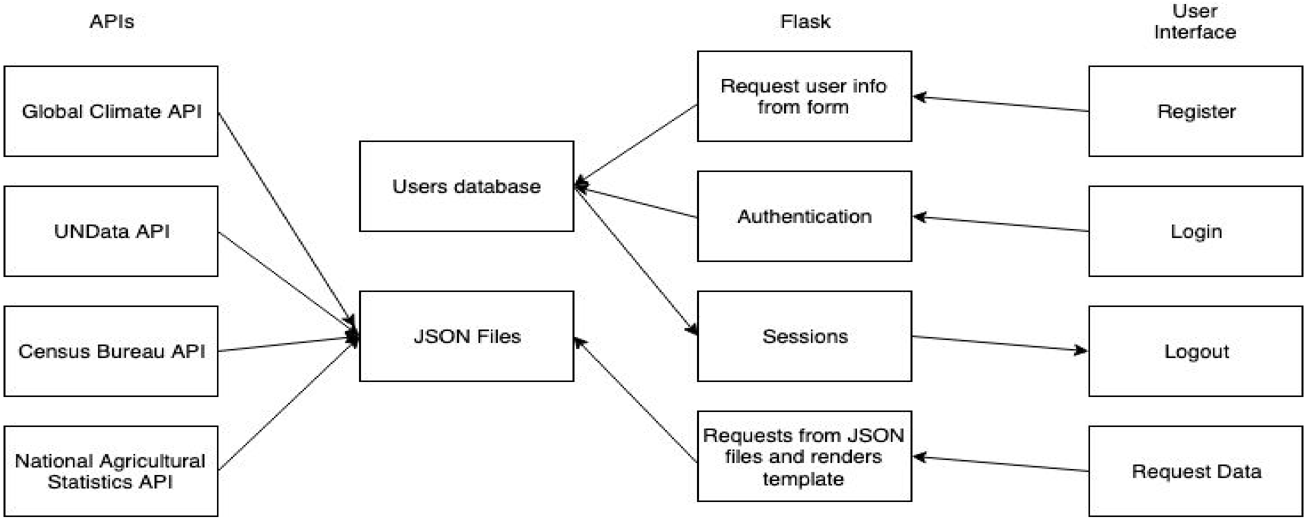
ROLES:

Alice - PM, Bootstrap
Moody - Database, python
Joseph - API, Bootstrap
David - Python, HTML

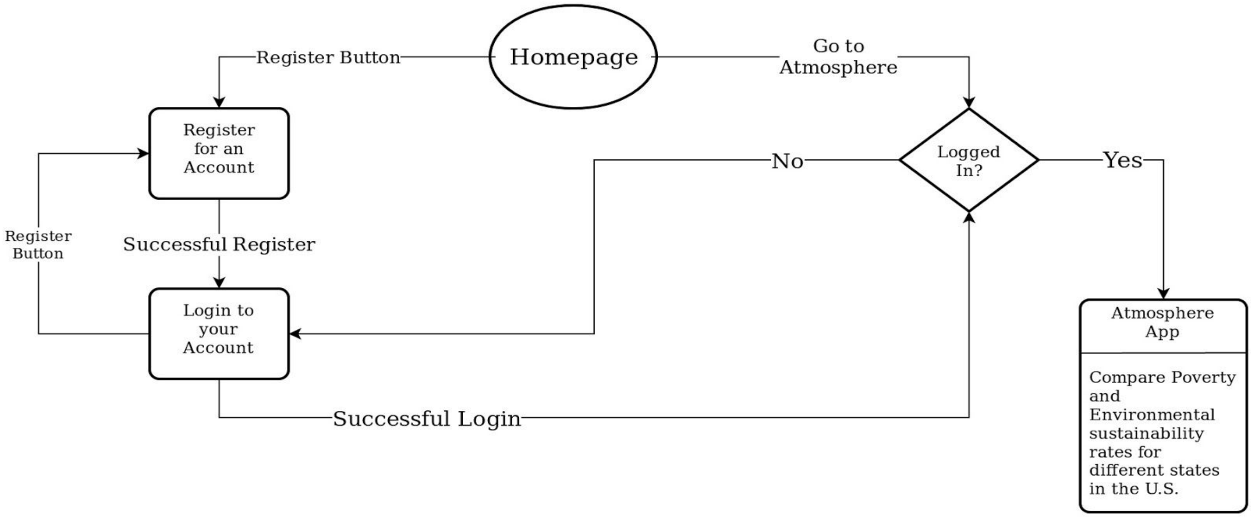
Functionality

- Interactive website that allows users to view and compare data from different states
- A few built-in data variables, stored as JSON files in a JSON file folder
  - Population per state
  - Poverty rates
  - Carbon emissions
  - Crop yield
- Users can choose the variables they want to compare, making a request to a Flask app that reads from the databases. If the data is not in the database, the app makes a request to the API that has the specified data.
- The data will be stored in databases relative to each API used. API information will be cached into the databases as they are requested by users.
- Scattergrams and charts will be generated by the parameters specified by the user. Displays information in a table numerically as well.
- Sliders on the scattergram allow the user to choose which years they want to see. They can move across time periods to see how data trends shifted. (extra)
- Implements bootstrap
  - Navbar
  - Sliders
  - Scattergrams
  - Charts
  - Fixed sidebar
  - https://getbootstrap.com/docs/4.0/examples/dashboard/ - good example of what ours should look like

Component Map



Site Map



Atmosphere Site Map

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Database Layout

Users

username TEXT	password TEXT
“jimbob”	“cooljoe23”
“hamlet”	“macbeth”

username: displayed name for each account, entered by the user
password: entered by the user

Census

Agriculture

Climate

Front End

- index.html
    - User **must** login or register for an account before viewing the site
    - Buttons to register or login
- login.html
    - Form for submitting an existing username or password
- register.html
    - Form for creating an account
- welcome.html
    - Home page that displays real-time data for the U.S. as a country (total U.S. population, carbon emissions, etc.)
    - Option for user to select a single state and view all the available statistics for that state via a form at the bottom of the page
    - Option for user to select and compare two states via a form at the bottom of the page
    - Submit button brings the user to another page that displays all the state-specific data
- lookup.html
    - Page that displays the specified state(s) and data in a table
    - Sliders that allow the user to move around different years (extra)
    - Generates a scattergram showing relation between selected data
    - Form that lets the user change between different data types
    - A log for the user’s most recent data comparisons (needs a database)

    - If user wants to request specific data, they can enter it into a form
        - If data does not exist within APIs, flash a “data does not exist” message
        - If data does exist in APIs, add data to the JSON file folder

Back End

- app.py
    - Login system
    - Registration system
    - Routes
        - “/”
            - Renders “index.html” if user not logged in
            - Renders “welcome.html” if user logged in
        - “/login”
            - Renders “login.html”
            - Redirect to “/home”
        - “/register”
            - Renders “register.html”
            - Redirect to “/”
        - “/welcome”
            - If user is not logged in, redirect to “/”
            - Renders “welcome.html”
            - Displays user specific info
        - “/lookup”
            - Renders “lookup.html”
            - Displays user’s recently viewed comparisons
        - “/logout”
            - Removes user from Sessions
            - Redirects to “/”
        - “/auth”
            - Will never be displayed to user
            - Checks if user is in session

Functions

- login()
    - @param: username
    - @param: password
- register()
    - @param: username
    - @param: password
    - Cannot register a username already in use
- welcome()

  - @param: username
- login()
  - Renders index.html
- auth()
  - @param: username
  - Checks if user is in session
- lookup()
  - @param: username
  - Makes requests to the API depending on the request the user makes
- analysis()
  - @param: username
  - Generates a graph and a table based on what the user requested through the data form. Takes in the states and the data types
- logout()
  - Logs out the user

APIs

- U.S. National Agricultural Statistics API
- U.S. Bureau for Economic Analysis API
- U.S. Energy Information Administration API
- oxguy3's "flags" API
- CanvasJS Graphing API

Important Links:

National Agricultural Statistics API - https://quickstats.nass.usda.gov/api

Key: 79900EE9-743F-3CBA-AD8A-26063F956065

https://quickstats.nass.usda.gov/api/get_param_values/?key=79900EE9-743F-3CBA-AD8A-26063F956065&param=sector_desc

Example of GET request of all the corn produced by Virginia since 2012

http://quickstats.nass.usda.gov/api/get_counts/?key=79900EE9-743F-3CBA-AD8A-26063F956065&commodity_desc=CORN&year__GE=2012&state_alpha=VA

Returns: {"count":13048}

Global Climate API -- https://datahelpdesk.worldbank.org/knowledgebase/articles/902061-climate-data-api

Working request:

http://climatedataapi.worldbank.org/climateweb/rest/v1/country/mavg/tas/1980/1999/FRA

General format:

http://climatedataapi.worldbank.org/climateweb/rest/v1/country/**type/var/start/end/ISO3[.ext]**

UNData API -- https://unstats.un.org/SDGAPI/swagger/

https://unstats.un.org/SDGAPI/v1/sdg/Indicator/Data?indicator=1.1.1&areaCode=1&timePeriod=2017&dimensions=%5B%7Bname%3A%22Age%22%2Cvalues%3A%5B%2215%2B%22%5D%7D%2C%20%7Bname%3A%22Sex%22%2Cvalues%3A%5B%22BOTHSEX%22%5D%7D%5D

M49 codes: https://unstats.un.org/unsd/methodology/m49/

Census Bureau:

https://api.census.gov/data/2018/acs/acs1?get=NAME,group(B01001)&for=us:1&key=07626e3b3578edd0e55ba15cb38770a85aedd31d

https://www.census.gov/data/developers/data-sets/acs-1year.html

Bureau for Economic Analysis:
https://apps.bea.gov/API/signup/index.cfm

Quick stats
https://quickstats.nass.usda.gov/

SQGDP9

Graphs: https://canvasjs.com/docs/charts/basics-of-creating-html5-chart/

https://www.eia.gov/opendata/embed.php?type=chart&series_id=EMISS.CO2-TOTV-TT-TO-AL.A