BURNIN' UP TECHNICAL REPORT

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OUR STORY

Earth climate is changing faster than ever. The Emission of pollutants in the air can result in serious changes to the climate. These pollutants can be extremely dangerous with harmful effects for public health, ecosystems, and agricultural productivity. We want people to realize how serious the issue is by showing data that capture the impact of climate change around the world. We hope that our website shows a clear picture of how fast and how far the climate has changed around the world in the past decades and encourages people to take action to help the environment.

1. Project Overview

This website aims to educate people on the climate crisis of our planet, and make them aware of how quickly our home is changing. This website will allow the user to navigate from city to city, or country by country, to see how each city or country is contributing to, or has been affected by climate change. They can also see how climate change has been affecting the world on a year by year basis. We hope to make our users jump into action by making small changes in their lives to decrease their individual carbon footprint, such as turning off lights they aren't using, or carpooling with others when they can.

2. User Stories

Look up air quality data for a city

“As an environmental activist, I'd like to know the air quality of various cities around the world to make a case for reducing carbon footprint.”

Observe historical trends within global climate change

“As an environmental science professor, I want to know the level of greenhouse gases globally during any given year to teach my students about historical trends in global climate change.”

Suggest related locations for comparing climate trends

“As a concerned resident of an urban area, I'd like to know about the air quality level in my city and other cities in my country. For instance, when I'm looking up the air quality level in my city, I'd like to view several related locations so I can compare my situation to residents of those areas.”

Examine the relationship between air quality and economics

“As an environmental researcher, I'd like to view the air quality as well as information about the economic situation (GDP, electricity, etc.) of a given country to investigate relationships between these factors.”

Examine the relationship between air quality and demographics

“As a sociologist, I'd like to know the air quality and demographic information (population, etc.) in a given city to understand how how these factors are related.”

3. RESTful API

https://climatechange-me.postman.co/collections/12123261-4a6d1dba-9951-449d-97bc-9232a40715c4?version=latest&workspace=b2836bb8-1324-4675-8e67-51f0a85abc38

4. Models

Countries

- Name
- List of Cities
- Population
- Currency
- Flag
- Primary Language
- Climate (Air Quality)
- GDP
- Region
- Subregion

Cities

- Name
- Population
- Country
- State/Province
- Time Zone
- Zip Codes
- Elevation
- Location
- Climate (Air Quality)
- Historical Weather

Global Climate Change by Year

- Year
- Month
- Global Temperature
- Carbon Dioxide Levels
- Methane
- Nitrous Oxide
- UV index
- World population

- Polar ice
- Decade
- Century
- Sea level

Filterable/Sortable Attributes:

Countries: name, primary language, region, currency, population

Cities: name, country, time zone, location, population

Global Climate Change: carbon dioxide levels, global temperature, years, nitrous oxide levels, months

Searchable Attributes:

Countries: GDP, subregion, list of cities, flag, air quality

Cities: zip codes, elevation, location, air quality, historical weather

Global Climate Change: UV indices, world population, polar ice, decade, century, sea level

Media:

Countries: photos of flags, graphs, tables

Cities: pictures, descriptions

Global Climate Change: tables, maps

Connections:

Country: Connects to city because countries have cities, and the air quality in cities contributes to air quality in a country. Connects to global climate change because the quality of air depends on carbon dioxide emissions globally.

City: Connects to countries because cities are in countries and contribute to the air quality of a country. Connects to global climate change because the air quality of a city depends on carbon dioxide emissions and can result in increasing climate change globally.

Global Climate Change: Connects to countries because air quality in countries affects global climate change. Connects to cities because air quality in cities affects carbon emissions globally.

5. Tools

- React
- React Bootstrap
- AWSAmplify
- Postman
- GitLab
- NameCheap
- Different API and data sources:
    - https://ipstack.com/documentation
    - https://datahelpdesk.worldbank.org/knowledgebase/articles/898599-indicator-api-queries
    - https://docs.openaq.org/
    - https://developer.climacell.co/v3/reference
    - http://geodb-cities-api.wirefreethought.com/
    - https://global-warming.org/
    - https://www.jpl.nasa.gov/edu/teach/activity/graphing-sea-level-trends/
    - https://ourworldindata.org/world-population-growth

6. Hosting

We got the domain name from NameCheap, and then used a Custom DNS to connect our NameCheap domain to the nameservers provided to us by AWS Amplify's Route53. Once we connected our NameCheap domain to AWSAmplify, we were able to add our domain to our app. Our app is directly connected to AWSAmplify through GitLab. To deploy our app, we edited the Amplify yaml file, changed the build path to the correct path in our repo, and added <npm install> and <npm run build> to our build command. We ran it and successfully deployed our website!

7. Gitlab

https://gitlab.com/caitlinlien/cs373-sustainability