

Smart City App

Contributors

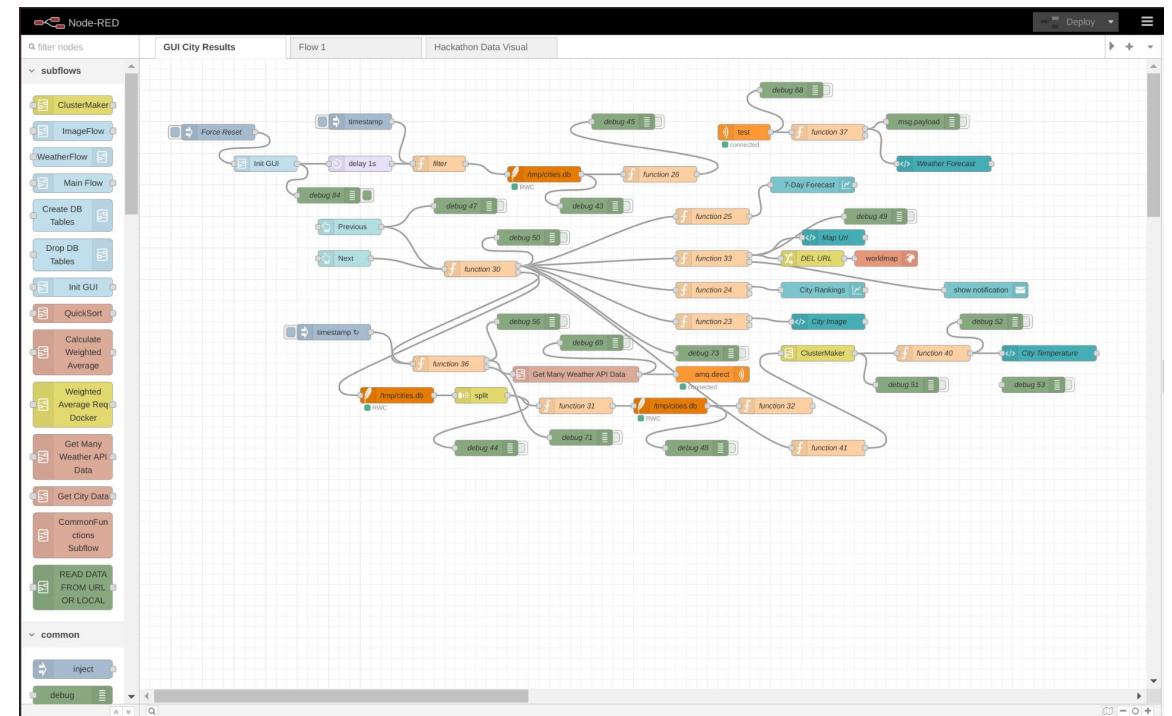
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Project Description

This project displays weather, ranking and location data from 70+ countries (and their available cities)!

Feats:

- Aggregation of 4 different weather APIs.
- Data Visualization.
- Complex Subflows.
- Hackathon Submission.



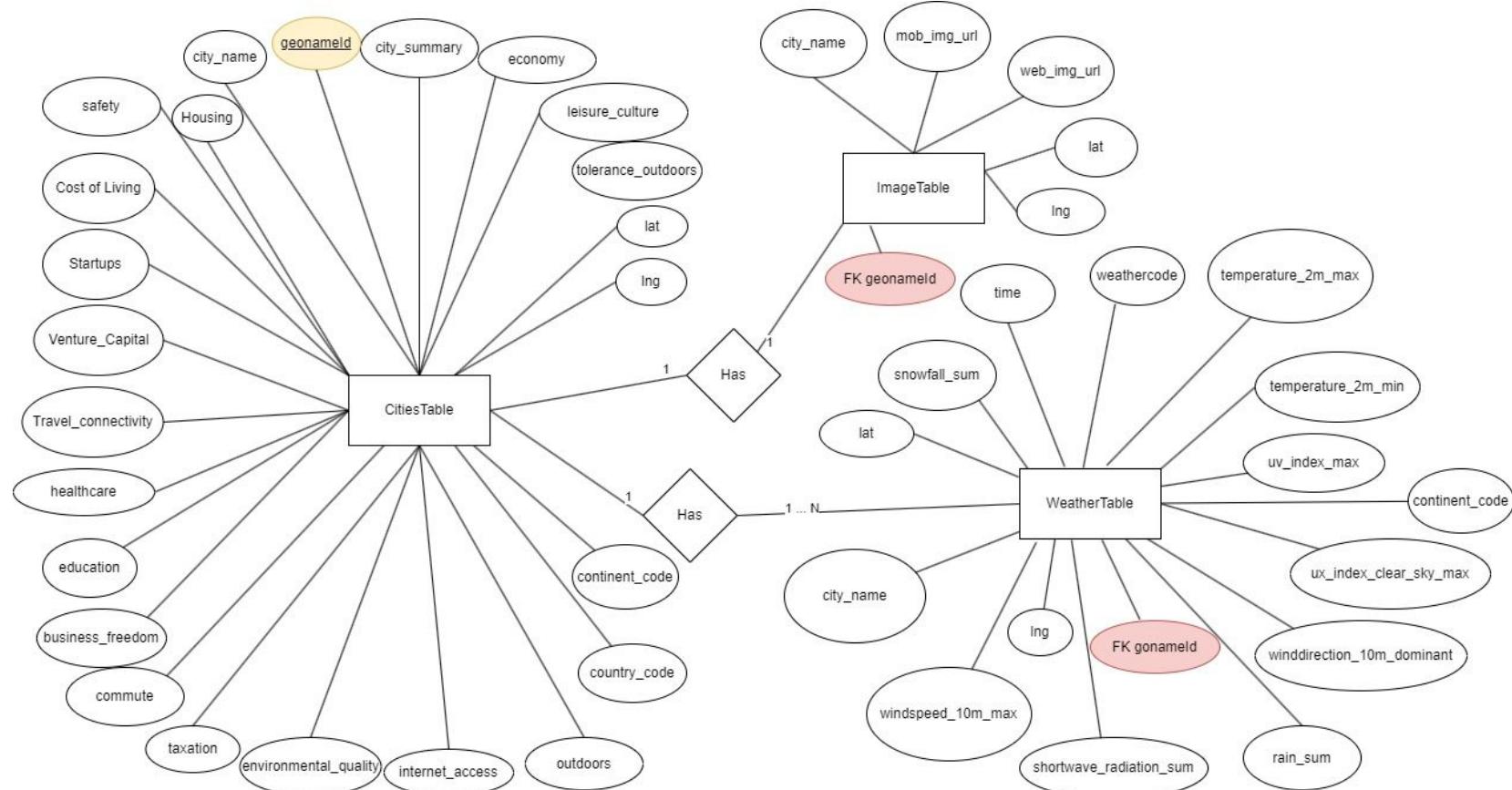
Main APIs Used

Description	API	Input	Output
Used to get the cities of a requested country.	https://www.geonames.org/	country code, geonames_username	cities (of the country code)
The API endpoint forecast accepts a geographical coordinate, a list of weather variables and responds with a JSON weather forecast for 7 days.	https://open-meteo.com/	geographical coordinate (lat, lon), time interval (hourly, daily, ...), list of weather variables that they are interested in (see this link)	temperature, weather (in general like rain, wind, humidity, soil, etc)
Gets the quality of life of a requested city.	https://developers.teleport.org/api/getting_started/#life_quality_ua	city_name	Quality of life (education, environmental quality, etc – Life Quality Data for Cities)
Gets a photo of a requested city.	https://developers.teleport.org/api/getting_started/#photos_ua	city_name	Photos of cities (City Photos)
OpenweatherMap API	https://openweathermap.org/current	api key, latitude, longitude	Current weather data for a city

APIs Used for Aggregation

API	Input	Output
https://www.weatherapi.com/docs/	Latitude, Longitude, API key	Current Weather data for given latitude, longitude.
https://docs.tomorrow.io/reference/realtime-weather	Latitude, Longitude, API key	Current Weather data for given latitude, longitude.
https://api.open-meteo.com/v1/forecast?latitude=52.52&longitude=13.41&current_weather=true	Latitude, Longitude, API key	Current Weather data for given latitude, longitude.
https://openweathermap.org/current	Latitude, Longitude, API key	Current Weather data for given latitude, longitude.

ER Diagram



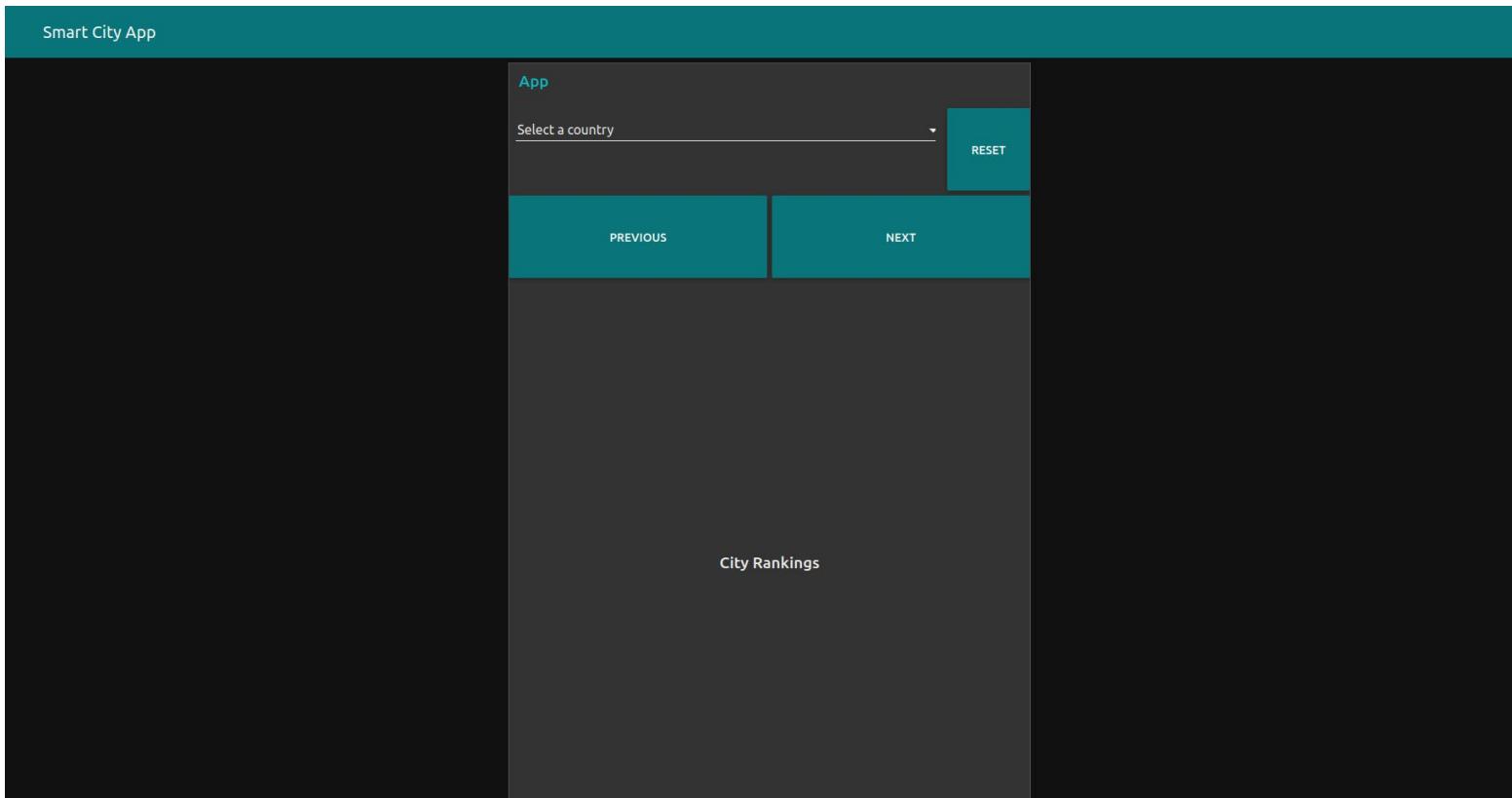
K-means Clustering

We implemented K-means clustering for grouping temperatures in the database.

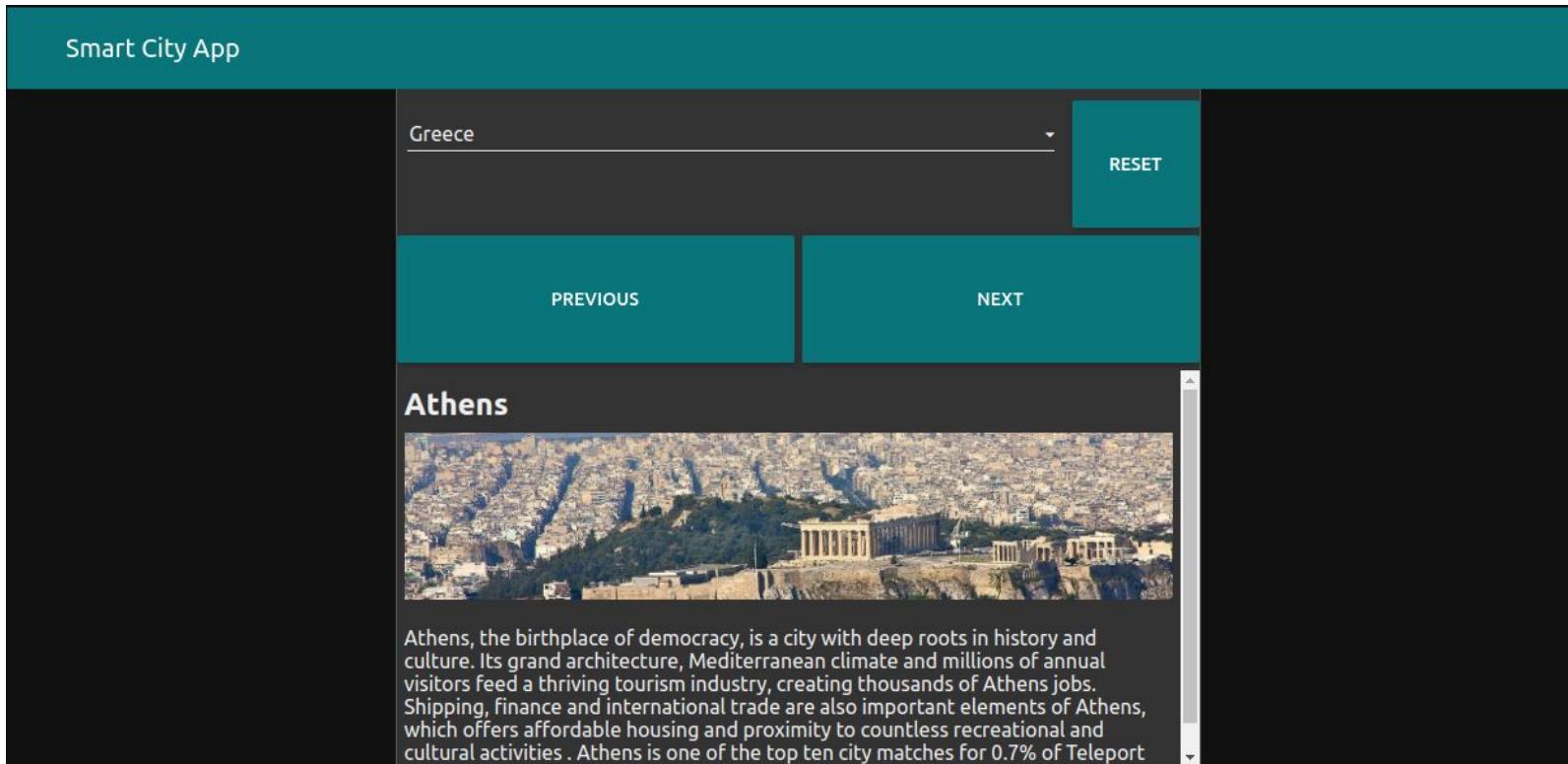
Example Output in GUI:

This city has **middle** temperature than other cities in database.

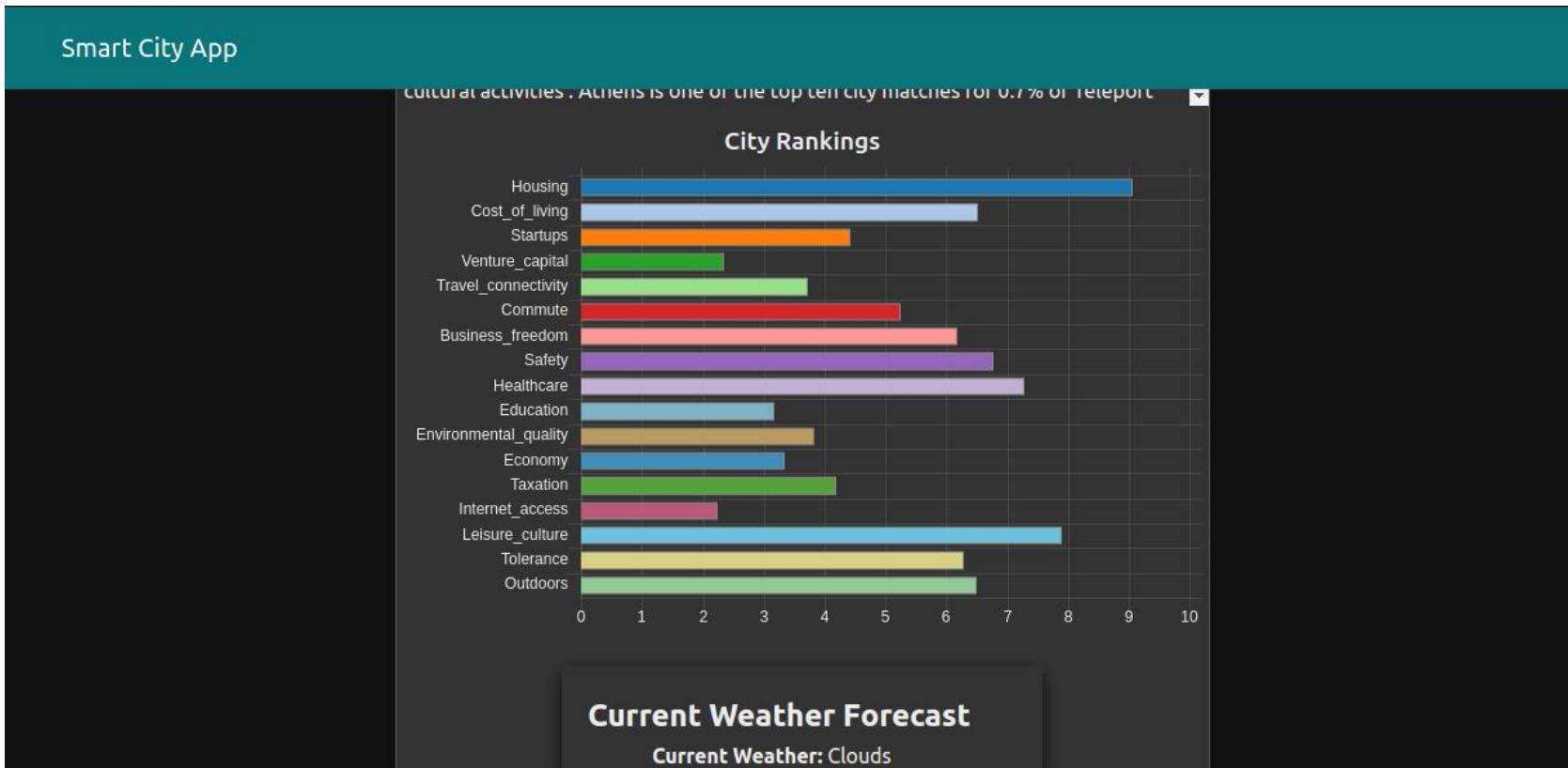
GUI Showcase



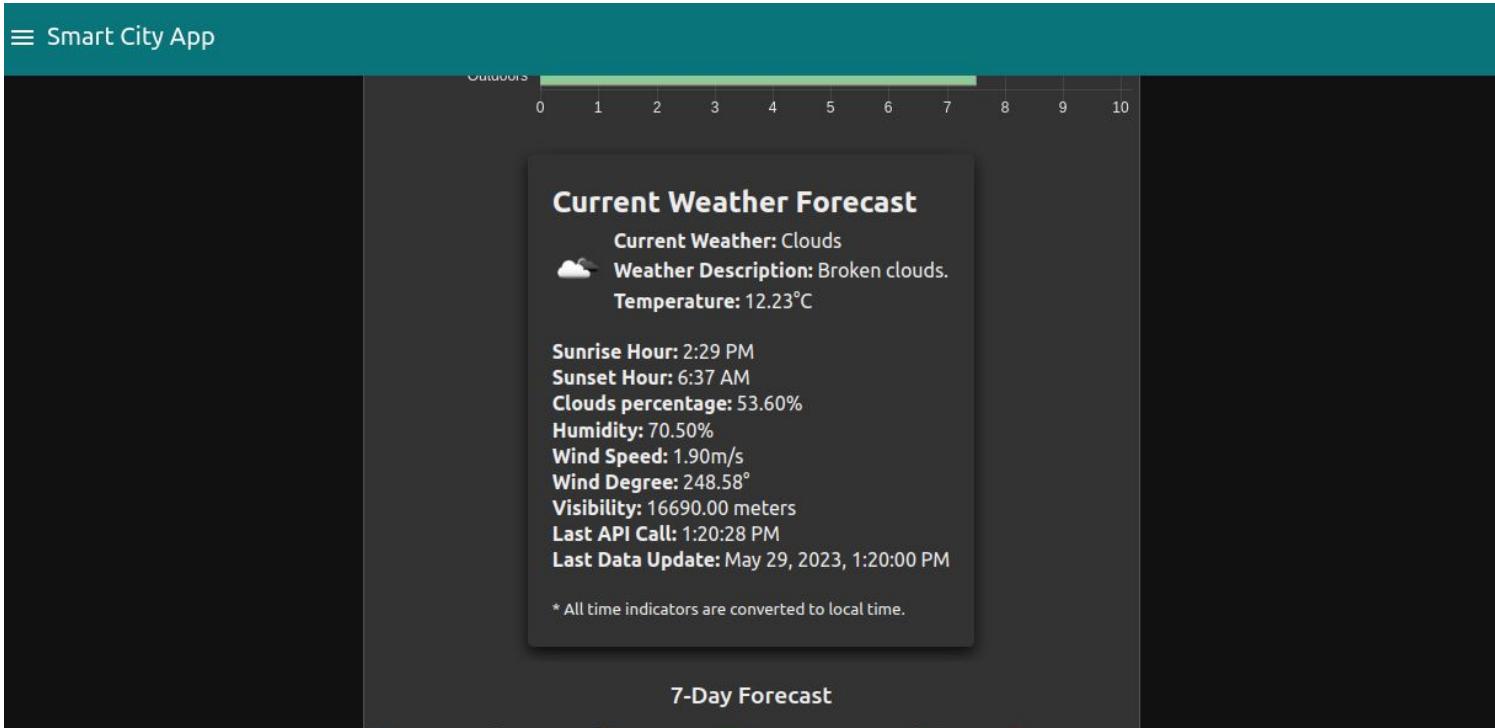
GUI Showcase



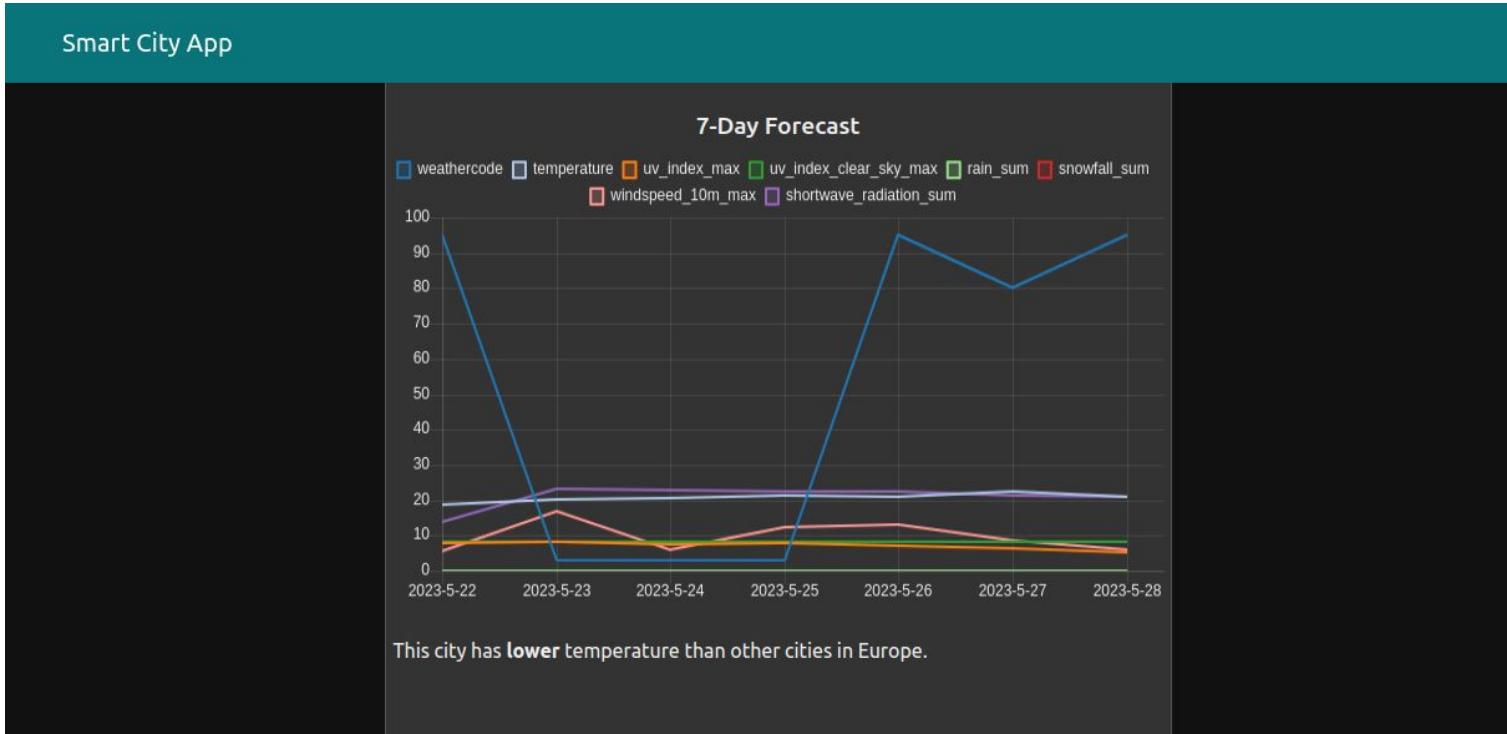
GUI Showcase



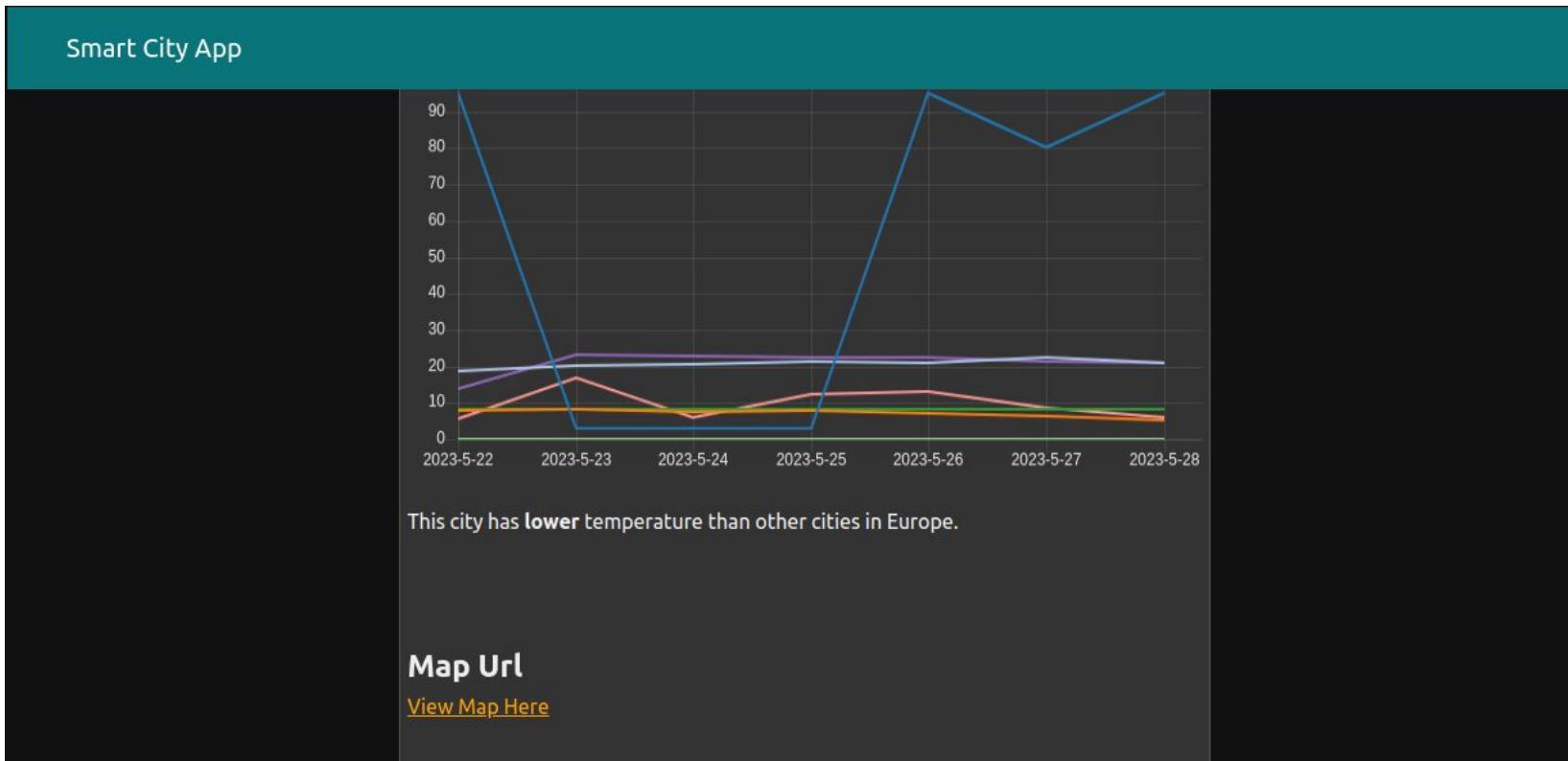
GUI Showcase



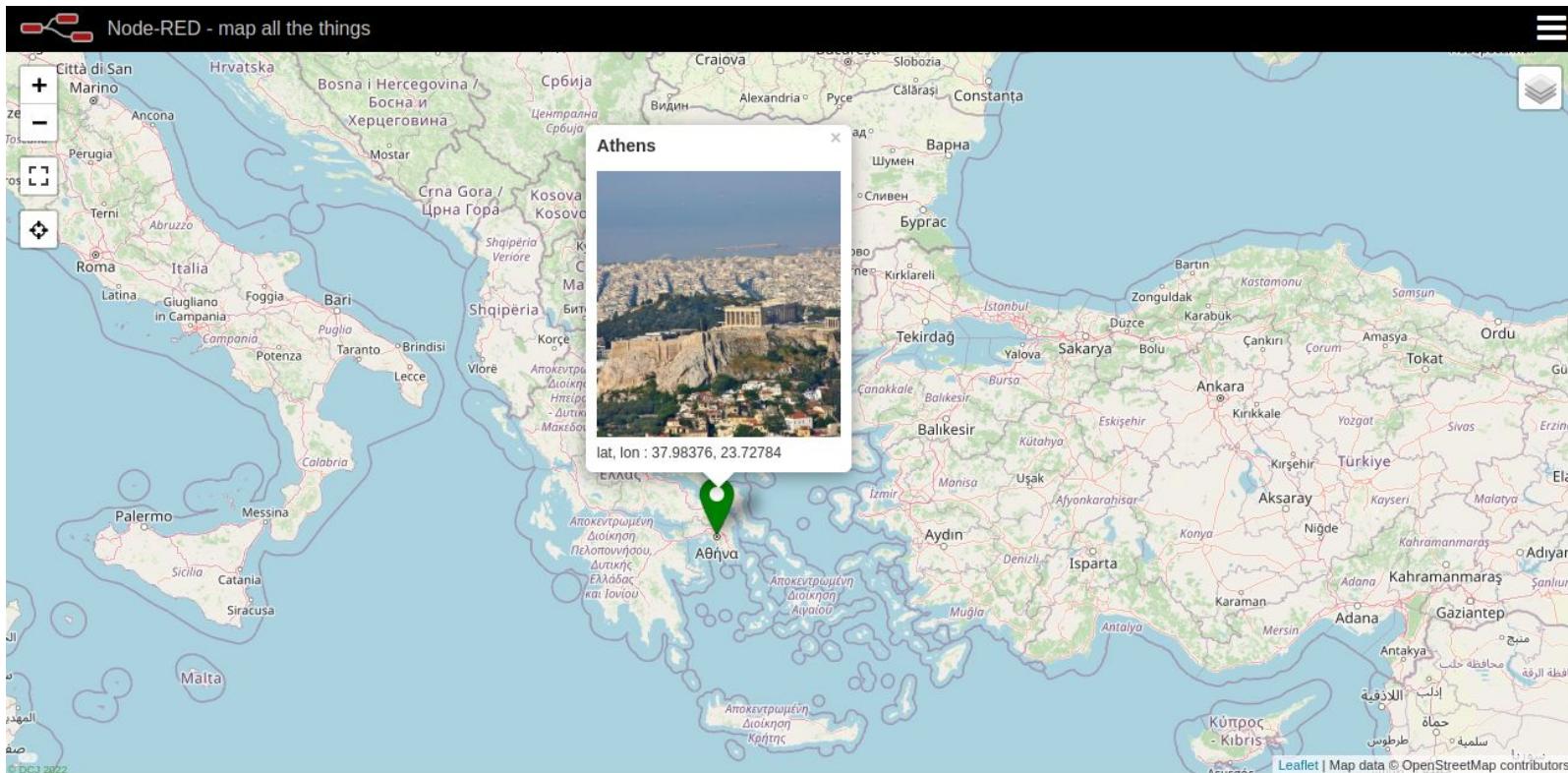
GUI Showcase



GUI Showcase



GUI Showcase



Participation in 2nd PHYSICS Hackathon 2023

You can view our devpost submission with our solutions to all the hackathon challenges [here](#).

2nd PHYSICS Hackathon 2023 Challenge
Solutions to the 2nd Hackathon PHYSICS Challenges 2023.

[Like](#) [Comment](#)

STORY **UPDATES**

Edit project

SUBMITTED TO
2nd PHYSICS Hackathon

CREATED BY
Manousos Linardakis

Describe your contribution

Ex: I worked on the back-end. It was my first time using Node, which was a little intimidating, but I learned a lot.

Save **Cancel**

Game Points: 600

Objectives:

1. [PHYSICS] Importing Sliding Window Action Tab
2. [PHYSICS] Using Sliding Window Subflow
3. Create your First Flow
4. Request a remote resource
5. Function API Node Flow
6. Switch API Node Flow

Watch on [YouTube](#)

2nd PHYSICS Hackathon 2023 Subflows

This is a collection with all the subflows we implemented for the 2nd PHYSICS Hackathon 2023.

Collection Info
7 things
Updated 2 days ago
Rating: not yet rated

Owners
manouslinard

Actions
Rate: ☆ ☆ ☆ ☆ ☆

Get City Info Subflow
This subflow gets data for a specific city name. To input the city name you can set it on the UI of this node or in msg.city_name (message will

manouslinard **flow**

Many Weather API Subflow
This subflow calculates the weighted averages of weather information from multiple weather APIs to provide a more precise estimation of the

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Weighted Average Request
This subflow communicates with the URL provided in the UI to run the Weighted Average Common Function. By default, it uses a Docker

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Weighted Average
This subflow calculates the weighted average of given values, considering the date of each value. The more recent the date, the higher the

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Quicksort Request
This subflow communicates with the URL provided in the UI (can be changed in the 'FUNCTIONS_URL' attribute), which by default

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QuickSort Subflow
This project implements the Quick Sort algorithm, which can perform both normal and reverse sorting based on the chosen option (to

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Common Functions Subflow, Openwhisk
This subflow is the one used in the following Docker image: kazakos13/common-functions.

manouslinard **flow**

Source Code (& other links)

- [Github Repository](#)
- [Project Documentation](#)
- [2nd PHYSICS Hackathon 2023 Submission](#)
- [Node-red Subflow Collection](#)
- [Hackathon Solutions Presentation](#)



Thank you for your time!
