Infra Team Candidate Home Work

Abstract

Let's build a weather service. In this task you will digest the weather data source and expose it via an amazing API that you are going to build!

CSV files

For this task we will use CSV files as our data source just to make it simple, in the "real world" we won't use CSV, we will use other format that are more optimized for weather data such as NetCDF, Zarr

Attached you will find 3 files in a CSV format. The files represent weather forecast data. The files are world coverage so you will be able to know what is the weather all over the world!

Each file represent a weather forecast of a different time (day/hour)

BTW: this is just a mock data, don't try to plan your next trip based on this forecast :)

The Task

In this task we want that you will create a web service that will give us the weather forecast for a specific location

Each file has 5 columns:

Longitude, Latitude, forecast time, Temperature, Precipitation

The service will have 2 routes

/weather/data - returns the weather forecast in a specific location for a specific time

/weather/summarize - returns the **max,min,avg** weather data (from all the files) for a specific location

1. **Temperature** in **Celsius**
2. **Precipitation Rate** in **mm/hr**

Service explanation

Route	Query Parameters	Output (JSON) - Example

/weather/data	lat
	lon
		[
		  {
		  "forecastTime": "2018-12-10T13:00:00.000Z",
		  "Temperature": 23.3,
		  "Precipitation": 32.1,
		  },
		  {
		  "forecastTime": "2018-12-10T14:00:00.000Z",
		  "Temperature": 33,
		  "Precipitation": 12,
		  },
		  {
		  "forecastTime": "2018-12-10T15:00:00.000Z",
		  "Temperature": 13.1,
		  "Precipitation": 15,
		  },
		]

/weather/summarize	lat
	lon
		{
		max: {
		  "Temperature": 33,
		  "Precipitation": 20,
		},
		min: {
		  "Temperature": 13,
		  "Precipitation": 3,
		},
		avg: {
		  "Temperature": 20.45,
		  "Precipitation": 12.4,
		}
		}

What is Expected

1. Send us a URL to a working service with an example of how to use it. For example: http://my-cool-service.com/weather/data?lat=42.332&lon=35.421
2. Send us the source code, or even better link to git repository with the source code

Implementation

The service should have 2 parts:

1. Ingest the CSV into DataBase
2. Web Server that read the data from the DataBase and display it

Tips

1. **Programming language** - Pick the programming language whatever you like, pick the language that you are most comfortable with.
2. **DataBase** - SQL/NoSQL whatever you like and think that will be fast and good for this task.
3. You can use any **free** hosting provider such as Heroku / AWS / GCS / Azure /DigitalOcean etc... (if you don't know any of them we recommend to use heroku as it is the easiest to start with)
4. **Take your time to go over the instructions and attached data before you begin.**

General

1. Attach to your task a list of things that you think that you should optimize / pitfalls in your solution
2. Write Any assumptions that you make (if any)
3. This is not a production service, but we will be happy to know what is missing in order to make it one.
4. If you think that you are investing too much time on the task, please let us know and write what is missing in order to complete it.

Data Source Links

1. https://storage.googleapis.com/climacell-infra-assets/interview/csv-task/file1.csv
2. https://storage.googleapis.com/climacell-infra-assets/interview/csv-task/file2.csv
3. https://storage.googleapis.com/climacell-infra-assets/interview/csv-task/file3.csv

Questions?

Please contact us, WhatsApp, email, phone call.

Good luck!