Event management system - Assignment Instructions

Objective:
Your task is to develop a RESTful service that manages and queries event data based on a user's geographical location and a specified date. This service will ingest data from a provided CSV dataset and then offer an API to find events for users.

Dataset:
You will be provided with a CSV dataset containing details of various events, including event names, city names, dates, times, latitudes, longitudes for each event.

Core Requirements:

Data creation API:

- Develop a REST API endpoint that allows for the addition of events into your system using the details provided in the CSV dataset (event name, city name, date, time, latitude, longitude).

Event Finder API:

- Create a `/events/find` REST API endpoint to list all events based on the user's latitude, longitude, and a specified date. The system should return events occurring within the next 14 days from the specified date. So the finder would accept the user's latitude, longitude and a date. See test case at the end of the page.
- The response must be sorted by the earliest event after the specified date, with a page size of 10.
- Each event in the response should include the event name, city, date, weather, and the distance from the user's location.

External APIs: Below two external APIs are provided to you. Make use of these to build the response of the finder API.

Weather API: Retrieve weather conditions for an event based on its location and date.

Example request:

```
curl -w "\n"
"https://gg-backend-assignment.azurewebsites.net/api/Weather?code=KfQnTWHJbg1giyB_Q9Ih3Xu3L9QOBDTuU5zwqVikZepCAzFut3rqsg==&city=Port%20Rebeccaberg&date=2024-03-01"
```

Distance Calculation API: Calculate the distance between the user's location and the event location.

Example request:

```
curl -w "\n"
"https://gg-backend-assignment.azurewebsites.net/api/Distanc
e?code=IAKvV2EvJa6Z6dEIUqqd7yGAu7IZ8gaH-a0QO6btjRc1AzFu8Y3Ic
Q==&latitude1=40.7128&longitude1=-74.0060&latitude2=25.51699
68004073&longitude2=-173.22570039222800"
```

Things to consider:

Pick the right database and index to optimize query performance. Optimize the Event Finder API to make parallel calls to the external Weather and Distance Calculation APIs to minimize response times.Implement robust error handling for external API failures and other errors, ensuring graceful degradation

Tech Stack: You are free to choose any tech stack for this project.

Deliverables (Partial deliverables will not be evaluated):

- Github repository link to the source code with a comprehensive **ReadME** file.

  The ReadME file should contain -

  - A brief report explaining your choice of tech stack and database, highlighting any particular design decisions and how challenges were addressed.
  - Clear instructions on how to set up and run your project, including any prerequisites.
- Document your API endpoints, specifying request/response formats and error codes.
- Submit a screen recording or screenshots showing the execution of the provided test case through your API
- BONUS : Host the API on free hosting platforms like Render, Hiroku, AWS or any other hosting platform and share the curl requests to the test case input.

Test Case for the finder API:

Input:

User's Source Latitude: 40.7128, User's Source Longitude: -74.0060, Search Date: 2024-03-15

Output:

Page1:


```
{
    "events": [
        {
            "event_name": "Structure support choice",
            "city_name": "Fryland",
            "date": "2024-03-15",
            "weather": "Rainy 25C",
            "distance_km": 8910.23984646717
        },
        {
            "event_name": "Party development available",
            "city_name": "Port Alexander",
            "date": "2024-03-15",
            "weather": "Windy 27C",
            "distance_km": 12710.135679990924
        },
        {
            "event_name": "Air quickly home",
            "city_name": "Lawrenceview",
            "date": "2024-03-16",
            "weather": "Sunny 12C",
            "distance_km": 12674.554607967306
        },
        {
            "event_name": "Of ask open",
            "city_name": "New Andrew",
            "date": "2024-03-16",
            "weather": "Rainy 3C",
            "distance_km": 15346.670405580746
        },
        {
            "event_name": "Create success",
            "city_name": "New Susanmouth",
            "date": "2024-03-16",
            "weather": "Sunny 5C",
```

```
            "distance_km": 8301.79106018215
        },
        {
            "event_name": "Phone city",
            "city_name": "Riveraberg",
            "date": "2024-03-16",
            "weather": "Rainy 16C",
            "distance_km": 16078.589188877986
        },
        {
            "event_name": "Political check five",
            "city_name": "Lake Timothymouth",
            "date": "2024-03-17",
            "weather": "Snowy 12C",
            "distance_km": 14210.540682363631
        },
        {
            "event_name": "Glass although",
            "city_name": "Kathleenfort",
            "date": "2024-03-17",
            "weather": "Windy 1C",
            "distance_km": 10573.065392070204
        },
        {
            "event_name": "Assume by",
            "city_name": "East Brandyfort",
            "date": "2024-03-18",
            "weather": "Rainy -1C",
            "distance_km": 16561.73323780224
        },
        {
            "event_name": "Democrat seat nor",
            "city_name": "South Mark",
            "date": "2024-03-18",
            "weather": "Rainy 32C",
            "distance_km": 13743.417820685168
        }
    ],
    "page": 1,
    "pageSize": 10,
    "totalEvents": 44,
    "totalPages": 5
}
```

Page2:


```
{
    "events": [
        {
            "event_name": "May",
            "city_name": "New Brittany",
            "date": "2024-03-19",
            "weather": "Windy 10C",
            "distance_km": 12064.028098110557
        },
        {
            "event_name": "Involve describe",
            "city_name": "Port Jessica",
            "date": "2024-03-19",
            "weather": "Sunny 6C",
            "distance_km": 12599.102440105282
        },
        {
            "event_name": "Parent recognize",
            "city_name": "East Teresa",
            "date": "2024-03-19",
            "weather": "Rainy 27C",
            "distance_km": 14527.66932211488
        },
        {
            "event_name": "Player",
            "city_name": "Lewischester",
            "date": "2024-03-19",
            "weather": "Cloudy 16C",
            "distance_km": 15232.42376978484
        },
        {
            "event_name": "Build successful democratic article",
            "city_name": "South Misty",
            "date": "2024-03-20",
            "weather": "Cloudy 9C",
            "distance_km": 10666.823058586893
        },
        {
            "event_name": "Discover environmental left",
            "city_name": "Jennifertown",
            "date": "2024-03-20",
            "weather": "Windy 26C",
            "distance_km": 16949.357175041365
```

```
        },
        {
            "event_name": "Unit step remember",
            "city_name": "Scottfort",
            "date": "2024-03-21",
            "weather": "Rainy 0C",
            "distance_km": 11510.979200878548
        },
        {
            "event_name": "Take bill travel nearly",
            "city_name": "Melissaborough",
            "date": "2024-03-22",
            "weather": "Rainy 26C",
            "distance_km": 12108.74168258985
        },
        {
            "event_name": "Network still camera",
            "city_name": "New Amandastad",
            "date": "2024-03-22",
            "weather": "Snowy 8C",
            "distance_km": 7483.974180272756
        },
        {
            "event_name": "Camera",
            "city_name": "Kelleyborough",
            "date": "2024-03-22",
            "weather": "Cloudy 19C",
            "distance_km": 15992.150199618112
        }
    ],
    "page": 2,
    "pageSize": 10,
    "totalEvents": 44,
    "totalPages": 5
}
```


Good luck with your assignment.

Submit your assignment here - https://forms.gle/KCtJPzusoPqVogGA9

There is no deadline for the assignment, we will keep evaluating submissions till we close a candidate.