Programming exercise

The primary goal of this exercise is to evaluate you on:

- Problem solving
- Efficient handling of data
- Code design and presentation

It's 100% okay if your solution is not perfect or complete as far as you score well on the above criteria. It's very crucial to note that all 3 criteria are equally important.

You are free to use any libraries or IDE.

Problem

Write a program that creates a travel plan where you visit every continent from a given origin city and back using the shortest distance traveled.

There are 6 continents to be visited (excluding Antarctica) so you should create a plan where you visit 6 cities (including the origin) in any order. The trip should start and end at the origin city which will be the input of the program. The distance between the two cities can be calculated using the formula given in the first answer to this question. The cities.json file attached below has all the cities, their geolocation (latitude, longitude), and the continent they belong to (param name: contId).

Important Contraints

Your program should output the best solution it can find within 60 seconds.

It shouldn't use more than 250MB of memory.

The program will be tested on a regular work laptop.

Input

Any origin city ID

eg: BOM

(Bombay)

Output

List of cities in the order to be visited and the distance traveled.

Example:

BOM (Bombay, Asia) → PAR (Paris, Europe) → CAI (Cairo, Africa)→ NYC (New York, North America) → BOG (Bogota, South America) →SYD (Sydney, Oceania) → BOM (Back to Bombay)

Distance travelled: XYZ KMS

Delivery

You should send the code and how to run it to mohit@greatescape.co within 24 hours of receiving the test. If received later, it won't be considered. Feel free to ask questions but keep in mind I may not be able to answer immediately!

Bonus

Try to find a travel plan that maximizes the travel distance. This part is just for fun, no bonus point will be given for this. Feel free to ignore this.

All the best!

cities.json 1124.6KB

All cities are mapped to 6 continents. Asia, Africa, Europe, North America, South America, Oceania.