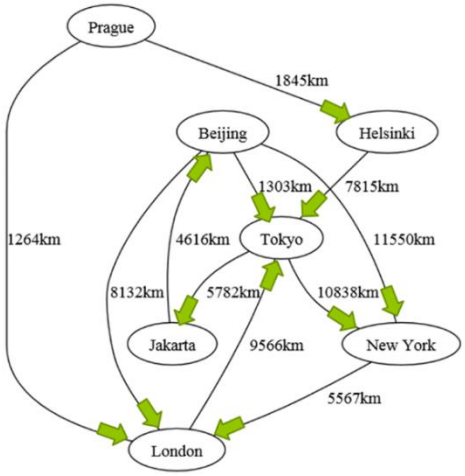
Name/Surname:
Number:

EHB208E **Data Structures & Programming** **Spring 2023**

2nd Homework

Write a "C" program using the graph below to find and print the path between the two cities using the depth-first search algorithm in a specific order (always choose the city with the shortest distance). The graph will be automatically imported from the given text file. Thus, it is possible to define any graph in your code with the given text file. Your code should generate the desired output file.



For this graph, the given input text file contains:

7 11
Prague Helsinki 1845
Prague London 122264
Beijing London 8132
Beijing Tokyo 1303
Beijing NewYork 11550
Helsinki Tokyo 7815
Tokyo Jakarta 5782
Tokyo NewYork 10838
Jakarta Beijing 4616
NewYork London 5567
London Tokyo 9566
Prague London
London London
London Prague

where in the first line, the number of nodes and the number of edges are given. In the following 11 lines, edges are given in the format of {SOURCE_NODE, DESTINATION_NODE, LENGTH}. The last three lines represent the questioned paths.

The output file format is given below:

Path (Prague London) : Prague -> Helsinki -> Tokyo -> New York -> London
Distance: 26065 km
Path (London London): London -> Tokyo -> New York -> London

Upload your project's C source files to "EHB208E Homework" field in your Ninova system.

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Distance: 25971 km
Path (London Prague): Path not found
Distance: Path not found

The distance is the length of this path. Your code should run on the terminal when typing

./hw2 -i input.txt -o output.txt

and should generate the desired output file. Here input.txt and output.txt are optional parameters that can be replaced with any input/output file path.

Important: Your code will be compiled with gcc or g++ and your grade will be automatically given. So, the text in the output file should be correctly typed (Not even extra spaces allowed. It is type-strict as the language:).

Your code should be properly commented. Uncommented code will get partial credit.
Your code should input the graph and queries from the given text file. Otherwise, your code will get partial credit.
You need to do your assignment alone. Code sharing among students or using code from any other source is not allowed.

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