Comprehensive experiment 3 Subway route planning

Course Name:	Data Structures and Algorithms (Python)
Task:	Comprehensive experiment 3 Subway route planning
Total score: 37.5 points	#participants: 1～3 persons
Experiment environment: :	
Visit the web:http://www.scholat.com/course/dsapython to load the instruction files about comprehensive experiment1 and use Pycharm/Spyder to finish the task.	
Problem description and basic requirements:	

Virtual scenario: A road map of Guangzhou metro is given, and visitors can query metro information through the terminal. The system can provide the shortest route calculation and recommendation function (e.g. shortest route, shortest time, least number of metro changes, etc.), with a UI interface and display. The route length between each station can be self-defined. To be simple, only needs to consider Line 1, Line 2 and Line 3.

Guangzhou metro route sketch map (clear version on official website)

1、 The Guangzhou metro route map can be treated as a weighted undirected graph (which can be simulated by yourself), with the vertices indicating each station of the Guangzhou metro, the edges indicating the roads between the stations, and the weights on the edges indicating the distances or cost.

2、 The route map formation can be restored in a files for the easy aceess.

3、Enter the names of two sites to get their shortest routes; if they are not accessible, you show "the unreachability of the two sites" .

4、The route should be displayed with the path length (time OR distance);

5、In addition to the basic functions mentioned above, extended functions, like routes with the least number of subway changes are also encouraged.

6、Finally, for algorithms, you can try to find the defects of the algorithms and improve, then you will naturally improve your comprehension of the algorithms you have learned, and also easily achieve the ability to create new algorithms.