Department of Computer Science
COMP2421 (Second Semester – Spring 2022/2023)
Project#4 Due Date: 6 July 2023 (before midnight-by 23:59)

In this project, you will implement Dijkstra's and Breadth First Search (BFS) algorithms to find the shortest path between two cities.

You should read the data from the given file *cities.txt* and then construct the shortest path between a given city (input from the user) and a destination city (input from the user). You should print the full path using both algorithms and the total distance for Dijkstra's algorithm.

The menu should include the following information:

1. Load cities: loads the file and construct the graph
2. Enter source: read the source city
3. Enter destination: print the full route of the shortest path including the distance between each two cities and the total shortest cost for both algorithms (Dijkstra and BFS)
4. Exit: prints the information of step 3 to a file called shortest_distance.txt and exits the program

Notes and submission instructions:

1. **This is individual work**. It should represent your own efforts. It is fine to discuss your work and to ask your colleagues, but you are not allowed to copy/paste the work of others or give your work to anyone else. You are not allowed to post/copy from other websites and/or social media and this will be considered as cheating.
2. Any **plagiarized** code will not be marked.
3. **Document format**. Please submit only the code file (**c** file) containing the code of your project. Please rename it as follows: "**P4_YourStudentID_FirstNameLastName_SectionNo.c**".
4. **Input/output file name**. Make sure that the input/output file names are the same as in the specifications.
5. Include your full name, student ID, and section number in the beginning of your file.
6. Please do not compress the file, only the C-file is needed.
7. Files not following the naming convention in point 3 will not be marked.