

CSE 211 Data Structures
Fall 2022
Lab Assignment 4 - Wednesday

You have given a city class which holds distance between cities as a graph. Specifically it is a matrix (distanceGraph) where matrix[i][j] is the distance from city i to city j. If there is a direct link to city j from i, it does not mean there is one from j to i. Thus, think that it is a directional graph. In your class, 4 methods are given. In this lab assignment you will implement the following functions.

- **void createCityGraph():** it creates and initializes the distanceGraph matrix with zeros.
- **void loadCity(string file):** it reads cities and distance between them from a file.
- **void printCityGraph():** it prints the distanceGraph matrix
- **void isTherePath(int city1, int city2):**
 - This function checks is there a path from city1 to city2
 - If there, then print a suitable message
 - If not, then print a suitable message
 - Beware of loops between cities.

SUBMISSION RULES:

- **Only upload graph.h file and change its name to NAME_SURNAME.h**
- **Do your own work to stay away from punishment.**
- **Do not change the class or main function, only implement the functions.**

```
city    0    1    2    3    4
-      -    -    -    -    -
0       0   10    0   20    0
1      10    0    0    0    0
2       0    0    0    7    0
3       0    0    0    0    5
4       0    0    0    0    0
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yes there is a path from 0 to 4
no, there is no path from 1 to 2
invalid city index
```