CSE 211 Data Structures
Fall 2022
Lab Assignment 4 - Monday

You have given a city class that holds the 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 the distance between them from a file.
- **void printCityGraph():** it prints the distanceGraph matrix
- **void greedyLongestRoad(int city):**
    - This function starts from a city and finds the longest path.
    - The longest path is found with a greedy algorithm. It selects the adjacent city with maximum distance.
    - A city should not be visited more than once
    - 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       15      0       0
2       0       0       0       7       0
3       0       0       0       0       5
4       0       0       0       0       0
--------------------------------------------

greedy longest road from city 0: 3 4
```