

## College of Computing and Information Technology



**Lecturer:** Dr. Nahla Belal  
**Course:** Computing Algorithms (CS312)  
**TA:** Eng. Mohammad Badawy



### Programming Assignment (Graph Algorithms)

1. Write a program that accepts a graph and stores it.
2. Write an implementation of Dijkstra's shortest path algorithm.
3. Write an implementation for a minimum spanning tree algorithm (Prim or Kruskal).
4. Implement BFS and DFS
5. Your program should accept the graph nodes and edges from the user, then allow the user to perform/obtain:
  - a. DFS
  - b. BFS
  - c. Minimum Spanning Tree
  - d. Single source shortest path calculation (to a single destination or all destinations).

#### Grading Policy:

Your program will be tested on different inputs. The grade is a pass/fail grade, if the program runs and displays the correct output, you pass, and otherwise, you fail.  
Any identical copies of the programs do not get a grade for the program.