

## CENG 3511

### Artificial Intelligence

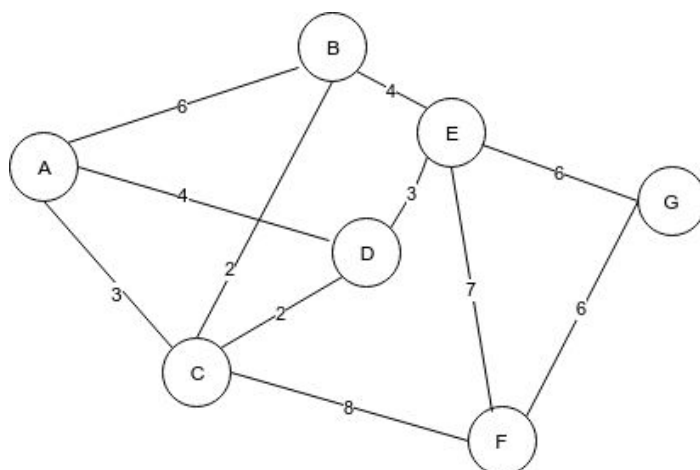
#### Project 1: Search Algorithms in Action

**Deadline:** Oct 18, 2019 11:59:59 pm

In this project, you are expected to implement the following search algorithms on a graph given as an input file:

- Breadth-first search
- Depth-first search
- Uniform-cost search

Following figure illustrates a sample graph and the corresponding input file.



A:{A:0, B:6, C:4, D:3, E:0, F:0, G:0}  
B:{A:6, B:0, C:2, D:0, E:4, F:0, G:0}  
C:{A:4, B:2, C:0, D:2, E:0, F:8, G:0}  
D:{A:3, B:0, C:2, D:0, E:3, F:0, G:0}  
E:{A:0, B:4, C:0, D:3, E:0, F:7, G:6}  
F:{A:0, B:0, C:8, D:0, E:7, F:0, G:6}  
G:{A:0, B:0, C:0, D:0, E:6, F:6, G:0}

Your program should get the graph file as a command line argument. After running the program, user will be prompted to give the start and goal state for the search. The path between the start state and goal state will be printed for each search algorithm.

Here is a sample of the program:

```
cetinkaya@aio:~$ python3 search.py graph.txt
```

```
Please enter the start state : A
```

```
Please enter the goal state : G
```

```
BFS : A - B - E - G
```

```
DFS : A - B - E - G
```

```
UCS : A - D - E - G
```

## **Submission**

This project requires 2 files to be submitted:

- Source file: Please name it as “search.py”
- Graph input file: Please name it as “graph.txt”

You should commit these files under ceng3511/p1/ folder in your git account until deadline.

**NOTE:** Your project will not be graded if you don't follow the submission rules.