KATHMANDU UNIVERSITY

Department of Computer Science and Engineering
Dulikhel, Kavre

LAB EXERCISE 4
[Code No: COMP 208]

Submitted By:
Rajaram Karki (Roll No: 23)
Avishek K.C. (Roll No: 21)

Submitted To:
Department of Computer Science and Engineering
Rajani Chulyadyo (Ma'am)

OUTPUT

Output for directed graph

```
Do you want your graph to be directed or not? (Enter 1 for yes and 0 for no):1
The graph is empty
The graph is not empty
The graph is directed graph.

The adjacency matrix is:
 0  1  0  0  0  0  0  0
 0  0  1  1  0  0  0  0
 1  0  0  0  0  0  0  0
 1  0  0  0  0  0  0  0
 0  1  0  0  0  0  0  0
 0  0  0  0  0  0  0  0
 0  0  0  0  0  0  0  0
 0  0  0  0  0  0  0  0


The degree of 5 is 1
The indegree is 0
The outdegree is 1


The entered vertices are not neighbours.
The given vertices are neighbours.


The neighbours of given vertex are: 1   2
The number of edges are:6


The number of edges are:5
The number of vertices are:6


The number of edges are:3
The number of vertices are:5
```

```
 The adjacency matrix is:
  0  0  0  0  0  0  0  0
  0  0  0  1  0  0  0  0
  0  0  0  0  0  0  0  0
  1  0  0  0  0  0  0  0
  0  1  0  0  0  0  0  0
  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0


 The vertices are:
 1       2       4       5       6


 Generating a random graph
 Do you want your graph to be directed or not? (Enter 1 for yes and 0 for no):1
 Enter the number of vertices in the graph
 8

 The adjacency matrix is:
  0  1  0  0  0  0  1  0
  0  1  0  0  1  1  1  1
  0  0  0  0  0  0  0  1
  1  0  0  1  1  1  0  1
  0  0  1  0  0  0  1  0
  0  0  1  0  1  0  1  1
  0  1  0  1  0  0  0  1
  0  1  1  0  0  1  0  0


 19      47      8       34      19      14      41      22
```

Output for undirected graph

```
Do you want your graph to be directed or not? (Enter 1 for yes and 0 for no):0
The graph is empty
The graph is not empty
The graph is undirected graph.

The adjacency matrix is:
 0  1  1  1  0  0  0  0
 1  0  1  1  1  0  0  0
 1  1  0  0  0  0  0  0
 1  1  0  0  0  0  0  0
 0  1  0  0  0  0  0  0
 0  0  0  0  0  0  0  0
 0  0  0  0  0  0  0  0
 0  0  0  0  0  0  0  0


The degree of 5 is 1


The entered vertices are not neighbours.
The entered vertices are neighbours.


The neighbours of given vertex are: 1   2
The number of edges are:6


The number of edges are:5
The number of vertices are:6


The number of edges are:3
The number of vertices are:5
```

```
 The adjacency matrix is:
  0  0  0  1  0  0  0  0
  0  0  0  1  1  0  0  0
  0  0  0  0  0  0  0  0
  1  1  0  0  0  0  0  0
  0  1  0  0  0  0  0  0
  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0


 The vertices are:
 1       2       4       5       6


 Generating a random graph
 Do you want your graph to be directed or not? (Enter 1 for yes and 0 for no):0
 Enter the number of vertices in the graph
 8

 The adjacency matrix is:
  0  0  1  1  1  0  0  1
  0  1  0  1  0  0  1  0
  1  0  0  1  0  0  0  0
  1  1  1  1  1  1  0  0
  1  0  0  1  0  0  0  1
  0  0  0  1  0  0  0  1
  0  1  0  0  0  0  0  0
  1  0  0  0  1  1  0  0


 26      15      6       36      0       3       20      45
```

This lab work was done collaboratively by both of us using Github as a version control. There were some merge conflicts while pulling from Git when both of us had made some changes to the repository. Then we had to select the required incoming of current changes to fix the conflict.

There was an equal contribution of both of us in the execution and implementation of every function in the entire program. We first discussed about the logic of every function and implemented it.

GitHub repository