CN FINAL PROJECT

Dijkstra's Algorithm and Bellman-Ford Equation

Manivas Gande and Gurmeet Sindhu

Responsibilities

Manivas Gande : Implemented Dijkstra's Algorithm
Gurmeet Sindhu : Implemented Bellman-Ford

Screenshots showing the outputs

Files in the project folder

```
~/PycharmProjects/my-python-projct/CN Project Final                ✔ 1003  00:12:22
$ ls
Project.pdf            network_topology-2.jpg topology-1.csv
network_topology-1.png routing.py            topology-2.csv
```

To run the program we can use below command in the terminal:
python3 routing.py filename

Topology-1.csv and source node : 'u'

```
~/PycharmProjects/my-python-projct/CN Project Final                ✔ 1005  00:13:10
$ python3 routing.py topology-1.csv
Variable names: ['u', 'v', 'w', 'x', 'y', 'z']
Please, provide the source node: u
Shortest path tree for node u:
uw, ux, uwv, uwvy, uwvyz
Costs of least-cost paths for node u:
u:0, v:6, w:3, x:5, y:10, z:12
Distance vector for node u:0 6 3 5 10 12
Distance vector for node v:6 0 3 7 4 6
Distance vector for node w:3 3 0 4 7 9
Distance vector for node x:5 7 4 0 7 9
Distance vector for node y:10 4 7 7 0 2
Distance vector for node z:12 6 9 9 2 0
```

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Topology-1.csv and source node : 'v'

```
~/PycharmProjects/my-python-projct/CN Project Final  ✔ 1007  00:13:50
$ python3 routing.py topology-1.csv
Variable names: ['u', 'v', 'w', 'x', 'y', 'z']
Please, provide the source node: v
Shortest path tree for node v:
vw, vy, vwu, vwx, vyz
Costs of least-cost paths for node v:
u:6, v:0, w:3, x:7, y:4, z:6
Distance vector for node u:0 6 3 5 10 12
Distance vector for node v:6 0 3 7 4 6
Distance vector for node w:3 3 0 4 7 9
Distance vector for node x:5 7 4 0 7 9
Distance vector for node y:10 4 7 7 0 2
Distance vector for node z:12 6 9 9 2 0
```

Topology-1.csv and source node : 'x''

```
~/PycharmProjects/my-python-projct/CN Project Final  ✔ 1009  00:14:10
$ python3 routing.py topology-1.csv
Variable names: ['u', 'v', 'w', 'x', 'y', 'z']
Please, provide the source node: x
Shortest path tree for node x:
xu, xw, xy, xz, xwv
Costs of least-cost paths for node x:
u:5, v:7, w:4, x:0, y:7, z:9
Distance vector for node u:0 6 3 5 10 12
Distance vector for node v:6 0 3 7 4 6
Distance vector for node w:3 3 0 4 7 9
Distance vector for node x:5 7 4 0 7 9
Distance vector for node y:10 4 7 7 0 2
Distance vector for node z:12 6 9 9 2 0
```

Topology-2.csv and source node : 'x'

```
~/PycharmProjects/my-python-projct/CN Project Final  ✔ 1011  00:14:27
$ python3 routing.py topology-2.csv
Variable names: ['x', 'y', 'z']
Please, provide the source node: x
Shortest path tree for node x:
xy, xyz
Costs of least-cost paths for node x:
x:0, y:2, z:3
Distance vector for node u:0 2 3
Distance vector for node v:2 0 1
Distance vector for node w:3 1 0
```

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Topology-2.csv and source node : 'z'