

CN ASSIGNMENT 4

Command to execute my code – `python BT18CSE130_DVR.py <filename>.txt`

<filename> is the input text file in my case I have tested my code with two test files input.txt and config.txt

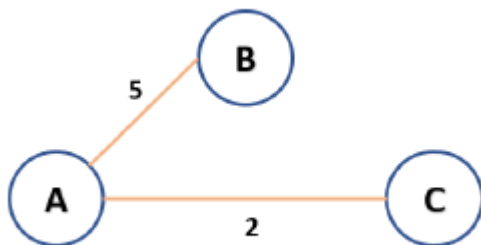
Working/Logic of my code-

It takes name of the file as an argument from command line then reads that file through ReadFile function which initializes number of routers and all the lists of routers' distances with other routers and their neighbours.

Then every router is run on a separate thread and list of their distance from other routers is pushed on the queue. Each of these threads calls the Bellman Ford function and updates their distance values, if an update takes place between two routers star list is also updated so that while printing for the next iteration we can keep track of which table values were updated from the previous iteration.

Number of iterations for which the code will run is equal to the number of routers.

Topology of input.txt –



Output for the above topology:

```
File Edit Selection View Go Run Terminal Help BT18CSE130_DVR.py - CN_4 - Visual Studio Code
EXPLORER
  OPEN EDITORS
    BT18CSE130_DVR.py
    input.txt
  CN_4
    assignment.pdf
    BT18CSE130_DVR.py
    config.txt
    input.txt
  OUTLINE
  TIMELINE

TERMINAL
  PS C:\Users\Sanchita\Desktop\CN_4> python BT18CSE130_DVR.py input.txt
  File opened successfully
  Number of Routers : 3
  Iteration = 0:
  Router A:
  dist(A) = 0.0
  dist(B) = 5.0
  dist(C) = 2.0

  Router B:
  dist(A) = 5.0
  dist(B) = 0.0
  dist(C) = inf

  Router C:
  dist(A) = 2.0
  dist(B) = inf
  dist(C) = 0.0

  Iteration = 1:
  Router A:
  dist(A) = 0.0
  dist(B) = 5.0
  dist(C) = 2.0

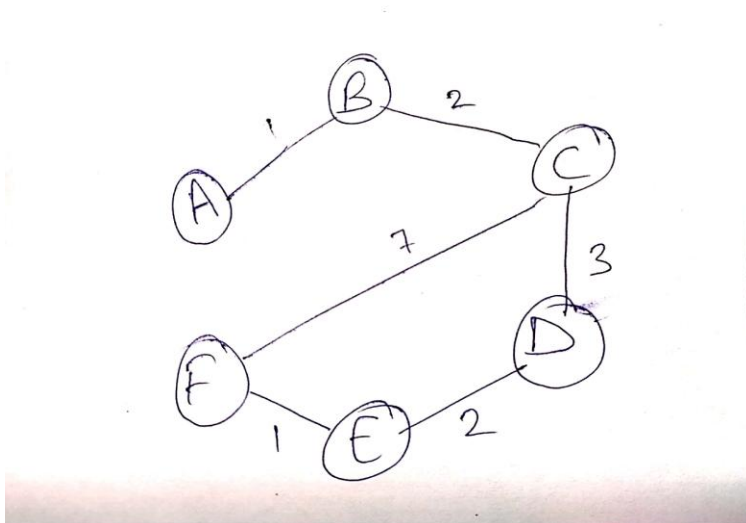
  Router B:
  dist(A) = 5.0
  dist(B) = 0.0
  *dist(C) = 7.0

  Router C:
  dist(A) = 2.0
  *dist(B) = 7.0
  dist(C) = 0.0

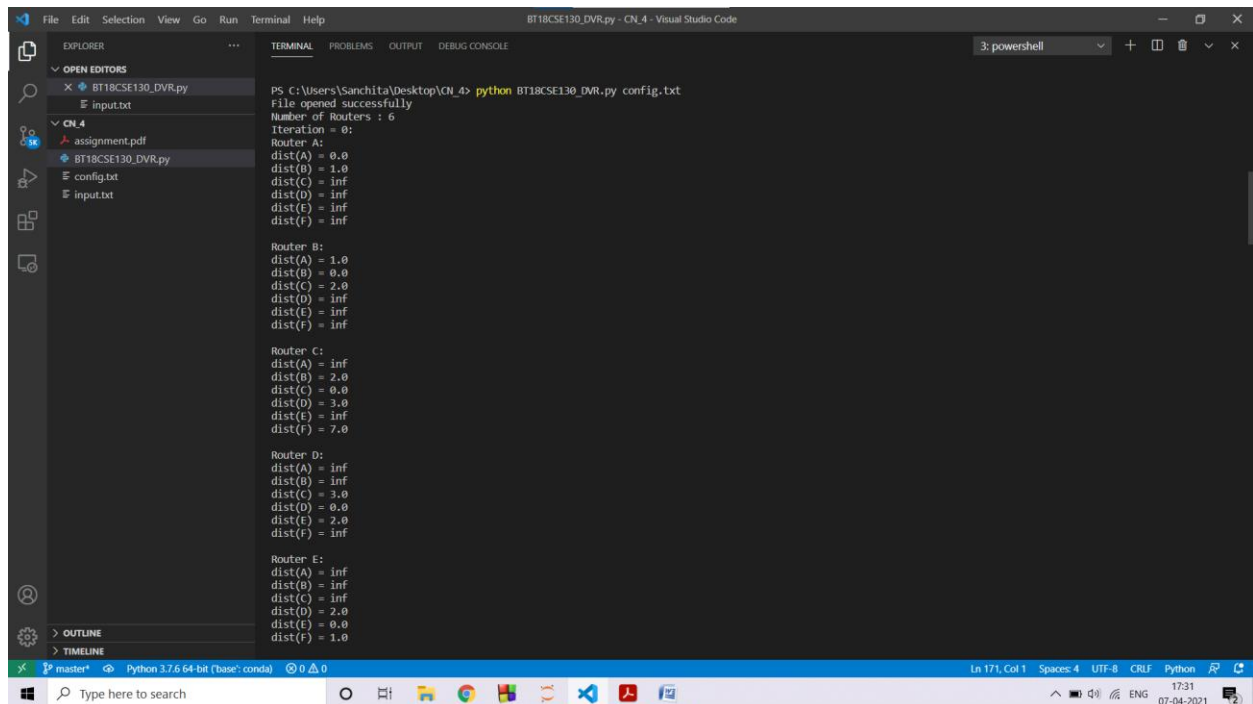
  Iteration = 2:
  Router A:
  dist(A) = 0.0
  dist(B) = 5.0
  dist(C) = 2.0

  Router B:
  dist(A) = 5.0
  dist(B) = 0.0
  dist(C) = 7.0
```

Topology of config.txt –



Output for the above topology:



```
PS C:\Users\Sanchita\Desktop\CN_4> python BT18CSE130_DVR.py config.txt
File opened successfully
Number of Routers : 6
Iteration = 0:

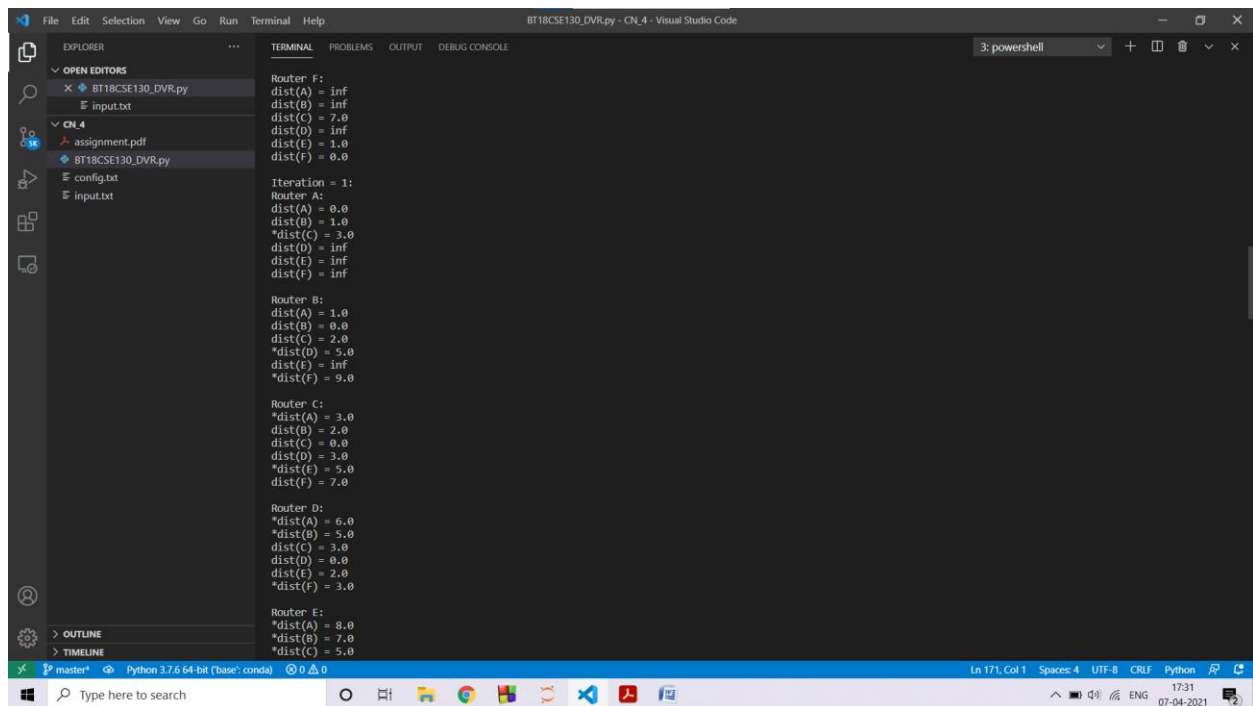
Router A:
dist(A) = 0.0
dist(B) = 1.0
dist(C) = inf
dist(D) = inf
dist(E) = inf
dist(F) = inf

Router B:
dist(A) = 1.0
dist(B) = 0.0
dist(C) = 2.0
dist(D) = inf
dist(E) = inf
dist(F) = inf

Router C:
dist(A) = inf
dist(B) = 2.0
dist(C) = 0.0
dist(D) = 3.0
dist(E) = inf
dist(F) = 7.0

Router D:
dist(A) = inf
dist(B) = inf
dist(C) = 3.0
dist(D) = 0.0
dist(E) = 2.0
dist(F) = inf

Router E:
dist(A) = inf
dist(B) = inf
dist(C) = inf
dist(D) = 2.0
dist(E) = 0.0
dist(F) = 1.0
```



```
Router F:
dist(A) = inf
dist(B) = inf
dist(C) = 7.0
dist(D) = inf
dist(E) = 1.0
dist(F) = 0.0

Iteration = 1:

Router A:
dist(A) = 0.0
dist(B) = 1.0
*dist(C) = 3.0
dist(D) = inf
dist(E) = inf
dist(F) = inf

Router B:
dist(A) = 1.0
dist(B) = 0.0
dist(C) = 2.0
*dist(D) = 5.0
dist(E) = inf
*dist(F) = 9.0

Router C:
*dist(A) = 3.0
dist(B) = 2.0
dist(C) = 0.0
dist(D) = 3.0
*dist(E) = 5.0
dist(F) = 7.0

Router D:
*dist(A) = 6.0
*dist(B) = 5.0
dist(C) = 3.0
dist(D) = 0.0
dist(E) = 2.0
*dist(F) = 3.0

Router E:
*dist(A) = 8.0
*dist(B) = 7.0
*dist(C) = 5.0
```