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**Writeup for lab**

This lab/program is about simulating the distance vector algorithm by calculating it. The inner mechanism is based on Bellman-Ford algorithm. Since the program is being run under a controlled environment, there are few things to consider.

Proper text file (.txt) must be given to the program so that it can be read. After that user can choose if the simulation occurs in the controlled environment or without any interruption. In the interruption option, first table is generated based on the data in the file and with each iteration, the table is updated unless the program finds the stable condition.

On the non-intervention option, the program calculates all the tables and prints them all with a clock timer as well and displays the table once it reaches the stable condition. User can choose to scroll back to check each iteration table or can ignore it but there will be intervention till the stable table is displayed.

No matter which option, once the program reaches the stable condition, the user is prompted with the option to change the node and the cost to see the updated table with new link cost. 16 is considered the infinite value and it causes program failure. After that, the new updated tables reach stable condition, the user can do new node change or choose to exit.

**Constraints: omega uses python2, this program is based on python3**

1. Filename entered must be in the directory.

2. If changing the node, user must enter all the required values in the integer format.

3. After changing the node and link cost, the program runs in the same option as chosen in the beginning.

4. The table generated is based on which node the program reads chronologically from the txt file. For example: using the provided values in the pdf results in the nodes being displayed as 12354 because the program read the txt file and it had node 5 before node 4.  
However, this does not affect the calculation.

5. Neighbor distance is set to 100 as default as no particular value was provided.

Compilation: Python sxb2420\_lab2.py

Run: Enter the txt filename

Choose: choose the intervention or non-intervention option

# Book: James F Kurose Keith W Ross

# https://stackoverflow.com/questions/6415728/junit-testing-with-simulated-user-input

# https://www.geeksforgeeks.org/distance-vector-routing-dvr-protocol/

# https://www.geeksforgeeks.org/bellman-ford-algorithm-dp-23/

# https://stackoverflow.com/questions/37083381/accessing-nested-for-loop-indexes

# https://www.codespeedy.com/calculate-the-execution-time-of-a-small-python-program/

# https://www.geeksforgeeks.org/python-measure-time-taken-by-program-to-execute/

# https://www.guru99.com/reading-and-writing-files-in-python.html