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Assighnment 4

Prims algorithm

The original code came from http://www.sanfoundry.com/java-program-find-mst-using-prims-algorithm/. The original implementation handled only integers and asked the user to construct a adjacency matrix put continually prompting them for input as vertices and weights. I have modified it to take in files named input.txt and convert the adjacency lists to matrixes. When the files are being scanned in I have the program check for if the file is there and if the file is passing in the right variable types at the right time by checking for filenotfound and inputmissmatch exceptions. The basic algrythim used starts at 0 and goes through the entire matrix. It constantly looks for the lightest weight connected to each of the nodes in the tree that adds a new node into the tree and adds it in.

The program makes a adjacency matrix from input, conducts prims algorithm, and finally prints out the result.

Sample input /output_____

```
Input: 8
16
4 5 0.35
4 7 0.37
5 7 0.28
0 7 0.16
1 5 0.32
0 4 0.38
2 3 0.17
1 7 0.19
0 2 0.26
1 2 0.36
1 3 0.29
2 7 0.34
6 2 0.40
3 6 0.52
6 0 0.58
6 4 0.93
 Output:

SOURCE   : DESTINATION = WEIGHT
    0        :       2       =         0.26
    2        :       3       =         0.17
```

```
0          :          4          =          0.38
4          :          5          =          0.35
3          :          6          =          0.52
0          :          7          =          0.16
```