Shortest Paths – Expected Results

Complete Square – completesquare.txt

```
"D:\Users\Malcolm\Dropbox\Work\Teaching\INB371 2014 Semester 1\Assessment\Ass
City  0 co-ordinates :  0  0
City  1 co-ordinates :  0 10
City  2 co-ordinates : 10  0
City  3 co-ordinates : 10 10

Edge Weights
============
  0.00  10.00  10.00  14.14
 10.00   0.00  14.14  10.00
 10.00  14.14   0.00  10.00
 14.14  10.00  10.00   0.00


Shortest Paths
==============
Distance from 0 to  1 =  10.00 travelling via  0  1
Distance from 0 to  2 =  10.00 travelling via  0  2
Distance from 0 to  3 =  14.14 travelling via  0  3

MST Weight = 30.00
==================

Shortest Paths on MST
=====================
Distance from 0 to  1 =  10.00 travelling via  0  1
Distance from 0 to  2 =  10.00 travelling via  0  2
Distance from 0 to  3 =  20.00 travelling via  0  2  3
```

Incomplete Square – incompletesquare.txt

```
"D:\Users\Malcolm\Dropbox\Work\Teaching\INB371 2014 Semester 1\Assessment\As
City  0 co-ordinates :  0  0
City  1 co-ordinates :  0 10
City  2 co-ordinates : 10  0
City  3 co-ordinates : 10 10

Edge Weights
============
  0.00  10.00  10.00  14.14
 10.00   0.00    -      -
 10.00    -     0.00    -
 14.14    -      -     0.00


Shortest Paths
==============
Distance from 0 to  1 =  10.00 travelling via  0  1
Distance from 0 to  2 =  10.00 travelling via  0  2
Distance from 0 to  3 =  14.14 travelling via  0  3

MST Weight = 34.14
==================

Shortest Paths on MST
=====================
Distance from 0 to  1 =  10.00 travelling via  0  1
Distance from 0 to  2 =  10.00 travelling via  0  2
Distance from 0 to  3 =  14.14 travelling via  0  3
```

Line – line.txt

```
"D:\Users\Malcolm\Dropbox\Work\Teaching\INB371 2014 Semester 1\Assessment\Assignment 2\Shorte
City  0 co-ordinates :   0   0
City  1 co-ordinates : 10 10
City  2 co-ordinates : 20 20
City  3 co-ordinates : 30 30

Edge Weights
============
  0.00  14.14      -       -
 14.14   0.00  14.14      -
     -  14.14   0.00  14.14
     -       -  14.14   0.00


Shortest Paths
==============
Distance from 0 to  1 =  14.14 travelling via  0  1
Distance from 0 to  2 =  28.28 travelling via  0  1  2
Distance from 0 to  3 =  42.43 travelling via  0  1  2  3

MST Weight = 42.43
==================

Shortest Paths on MST
=====================
Distance from 0 to  1 =  14.14 travelling via  0  1
Distance from 0 to  2 =  28.28 travelling via  0  1  2
Distance from 0 to  3 =  42.43 travelling via  0  1  2  3
```

Shape – shape.txt

```
 "D:\Users\Malcolm\Dropbox\Work\Teaching\INB371 2014 Semester 1\Assessment\Assignment 2\ShortestPaths\b

City   0 co-ordinates :    0   0
City   1 co-ordinates :    2   0
City   2 co-ordinates :    4   0
City   3 co-ordinates :    6   0
City   4 co-ordinates :    2   1
City   5 co-ordinates :    4   1
City   6 co-ordinates :    0   2
City   7 co-ordinates :    2   2
City   8 co-ordinates :    4   2
City   9 co-ordinates :    6   2

Edge Weights
============
   0.00   2.00      -      -      -      -      -      -      -      -
   2.00   0.00      -      -   1.00      -      -      -      -      -
      -      -   0.00   2.00      -   1.00      -      -      -      -
      -      -   2.00   0.00      -      -      -      -      -      -
      -   1.00      -      -   0.00   2.00      -   1.00      -      -
      -      -   1.00      -   2.00   0.00      -      -   1.00      -
      -      -      -      -      -      -   0.00   2.00      -      -
      -      -      -      -   1.00      -   2.00   0.00      -      -
      -      -      -      -      -   1.00      -      -   0.00   2.00
      -      -      -      -      -      -      -      -   2.00   0.00


Shortest Paths
==============
Distance from 0 to  1 =    2.00 travelling via  0  1
Distance from 0 to  2 =    6.00 travelling via  0  1  4  5  2
Distance from 0 to  3 =    8.00 travelling via  0  1  4  5  2  3
Distance from 0 to  4 =    3.00 travelling via  0  1  4
Distance from 0 to  5 =    5.00 travelling via  0  1  4  5
Distance from 0 to  6 =    6.00 travelling via  0  1  4  7  6
Distance from 0 to  7 =    4.00 travelling via  0  1  4  7
Distance from 0 to  8 =    6.00 travelling via  0  1  4  5  8
Distance from 0 to  9 =    8.00 travelling via  0  1  4  5  8  9

MST Weight = 14.00
==================

Shortest Paths on MST
=====================
Distance from 0 to  1 =    2.00 travelling via  0  1
Distance from 0 to  2 =    6.00 travelling via  0  1  4  5  2
Distance from 0 to  3 =    8.00 travelling via  0  1  4  5  2  3
Distance from 0 to  4 =    3.00 travelling via  0  1  4
Distance from 0 to  5 =    5.00 travelling via  0  1  4  5
Distance from 0 to  6 =    6.00 travelling via  0  1  4  7  6
Distance from 0 to  7 =    4.00 travelling via  0  1  4  7
Distance from 0 to  8 =    6.00 travelling via  0  1  4  5  8
Distance from 0 to  9 =    8.00 travelling via  0  1  4  5  8  9
```

Five Random Points – five.txt

```
"D:\Users\Malcolm\Dropbox\Work\Teaching\INB371 2014 Semester 1\Assessment\Assignment 2\ShortestPath

City  0 co-ordinates : 45 14
City  1 co-ordinates : 23 54
City  2 co-ordinates :  6 23
City  3 co-ordinates : 78 64
City  4 co-ordinates : 25 29

Edge Weights
============
  0.00      -       -  59.91       -
     -   0.00       -       -   25.08
     -      -    0.00       -   19.92
 59.91      -       -    0.00   63.51
     -  25.08   19.92   63.51    0.00


Shortest Paths
==============
Distance from 0 to  1 = 148.50 travelling via  0  3  4  1
Distance from 0 to  2 = 143.35 travelling via  0  3  4  2
Distance from 0 to  3 =  59.91 travelling via  0  3
Distance from 0 to  4 = 123.42 travelling via  0  3  4

MST Weight = 168.43
===================

Shortest Paths on MST
=====================
Distance from 0 to  1 = 148.50 travelling via  0  3  4  1
Distance from 0 to  2 = 143.35 travelling via  0  3  4  2
Distance from 0 to  3 =  59.91 travelling via  0  3
Distance from 0 to  4 = 123.42 travelling via  0  3  4
```

Ten Random Points – ten.txt

```
"D:\Users\Malcolm\Dropbox\Work\Teaching\INB371 2014 Semester 1\Assessment\Assignment 2\ShortestPaths\bin\Debug
City   0 co-ordinates : 92   8
City   1 co-ordinates : 80 23
City   2 co-ordinates :  1 52
City   3 co-ordinates : 48 41
City   4 co-ordinates : 91 91
City   5 co-ordinates : 93 100
City   6 co-ordinates : 38 89
City   7 co-ordinates : 59 77
City   8 co-ordinates :  6  2
City   9 co-ordinates : 92 54

Edge Weights
============
  0.00       - 101.08     -   83.01     -   97.35  76.49      -       -
     -    0.00  84.15  36.72  68.88  78.09  78.23      -       -       -
101.08  84.15   0.00     -   98.09     -       -       -       -   91.02
     -  36.72     -    0.00  65.95     -       -       -   57.31      -
 83.01  68.88  98.09  65.95   0.00     -   53.04  34.93      -   37.01
     -  78.09     -       -       -    0.00  56.09  41.05      -   46.01
 97.35  78.23     -       -   53.04  56.09   0.00     -       -   64.35
 76.49     -       -       -   34.93  41.05      -    0.00  91.84      -
     -       -       -   57.31     -       -       -   91.84   0.00 100.50
     -       -   91.02     -   37.01  46.01  64.35      - 100.50   0.00


Shortest Paths
==============
Distance from 0 to   1 = 151.89 travelling via   0   4   1
Distance from 0 to   2 = 101.08 travelling via   0   2
Distance from 0 to   3 = 148.95 travelling via   0   4   3
Distance from 0 to   4 =  83.01 travelling via   0   4
Distance from 0 to   5 = 117.53 travelling via   0   7   5
Distance from 0 to   6 =  97.35 travelling via   0   6
Distance from 0 to   7 =  76.49 travelling via   0   7
Distance from 0 to   8 = 168.32 travelling via   0   7   8
Distance from 0 to   9 = 120.02 travelling via   0   4   9

MST Weight = 486.65
===================

Shortest Paths on MST
=====================
Distance from 0 to   1 = 214.08 travelling via   0   7   4   3   1
Distance from 0 to   2 = 298.23 travelling via   0   7   4   3   1   2
Distance from 0 to   3 = 177.36 travelling via   0   7   4   3
Distance from 0 to   4 = 111.41 travelling via   0   7   4
Distance from 0 to   5 = 117.53 travelling via   0   7   5
Distance from 0 to   6 = 164.45 travelling via   0   7   4   6
Distance from 0 to   7 =  76.49 travelling via   0   7
Distance from 0 to   8 = 234.68 travelling via   0   7   4   3   8
Distance from 0 to   9 = 148.43 travelling via   0   7   4   9
```

Ten Points (Disconnected Graph) – ten_disconnected.txt

```
"D:\Users\Malcolm\Dropbox\Work\Teaching\INB371 2014 Semester 1\Assessment\Assignment 2\ShortestPaths\bi

City   0 co-ordinates : 94 20
City   1 co-ordinates : 64 40
City   2 co-ordinates :  9 97
City   3 co-ordinates : 23 96
City   4 co-ordinates : 30 94
City   5 co-ordinates : 90 30
City   6 co-ordinates : 10 52
City   7 co-ordinates : 68 94
City   8 co-ordinates : 49 79
City   9 co-ordinates : 71 94

Edge Weights
============
  0.00     -       -       -       -       -       -    78.43      -       -
    -     0.00     -    69.40     -       -    55.32     -    41.79     -
    -       -    0.00      -       -       -       -       -       -       -
    -    69.40     -    0.00      -       -    45.88   45.04     -       -
    -       -       -       -    0.00   87.73     -       -    24.21     -
    -       -       -       -    87.73  0.00      -    67.68     -       -
    -    55.32     -    45.88     -       -    0.00      -       -       -
 78.43     -       -    45.04     -    67.68     -    0.00      -       -
    -    41.79     -       -    24.21     -       -       -    0.00      -
    -       -       -       -       -       -       -       -       -    0.00


Shortest Paths
==============
Distance from 0 to   1 = 192.88 travelling via  0  7  3  1
NO PATH  from 0 to   2
Distance from 0 to   3 = 123.48 travelling via  0  7  3
Distance from 0 to   4 = 233.84 travelling via  0  7  5  4
Distance from 0 to   5 = 146.11 travelling via  0  7  5
Distance from 0 to   6 = 169.36 travelling via  0  7  3  6
Distance from 0 to   7 =  78.43 travelling via  0  7
Distance from 0 to   8 = 234.67 travelling via  0  7  3  1  8
NO PATH  from 0 to   9

MST Weight = 358.34
===================

Shortest Paths on MST
=====================
Distance from 0 to   1 = 224.68 travelling via  0  7  3  6  1
NO PATH  from 0 to   2
Distance from 0 to   3 = 123.48 travelling via  0  7  3
Distance from 0 to   4 = 290.67 travelling via  0  7  3  6  1  8  4
Distance from 0 to   5 = 146.11 travelling via  0  7  5
Distance from 0 to   6 = 169.36 travelling via  0  7  3  6
Distance from 0 to   7 =  78.43 travelling via  0  7
Distance from 0 to   8 = 266.46 travelling via  0  7  3  6  1  8
NO PATH  from 0 to   9
```