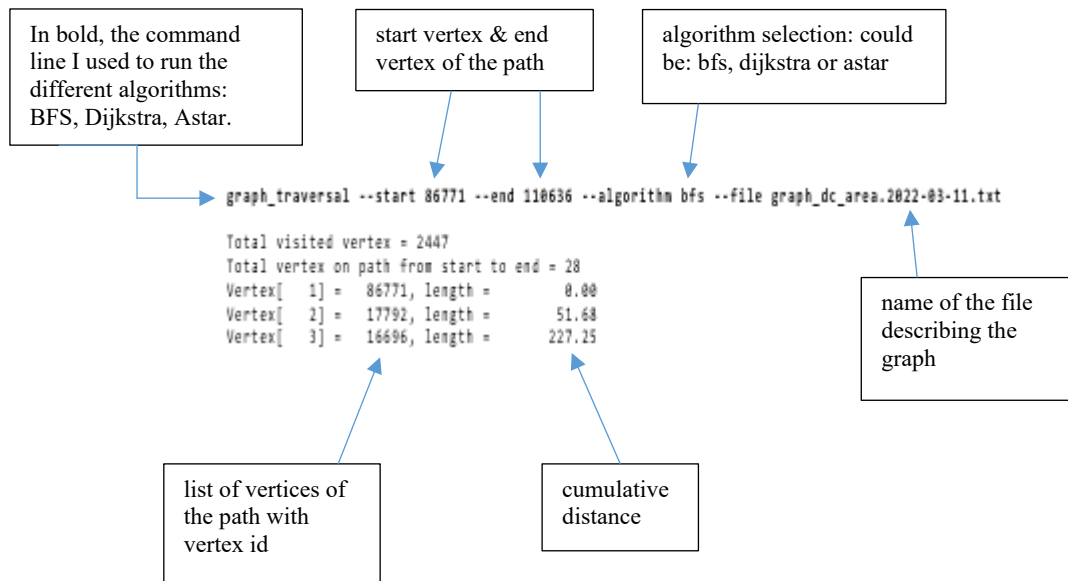# Project: Map Path Finder [Some Help #1]

In this document, you will find traces which could help you debug your program.

1.1 How to Read my Traces

In bold, the command line I used to run the different algorithms: BFS, Dijkstra, Astar.

start vertex & end vertex of the path

algorithm selection: could be: bfs, dijkstra or astar

```
graph_traversal --start 86771 --end 110636 --algorithm bfs --file graph_dc_area.2022-03-11.txt

Total visited vertex = 2447
Total vertex on path from start to end = 28
Vertex[   1] =   86771, length =        0.00
Vertex[   2] =   17792, length =       51.68
Vertex[   3] =   16696, length =      227.25
```

name of the file describing the graph

list of vertices of the path with vertex id

cumulative distance

1.2 BFS Trace

Beware that for BFS, the total length could be different from mine, but the number of vertices on the path must be the same.

```
graph_traversal --start 86771 --end 110636 --algorithm bfs --file graph_dc_area.2022-03-11.txt

Total visited vertex = 2447
Total vertex on path from start to end = 28
Vertex[  1] =  86771, length =       0.00
Vertex[  2] =  17792, length =      51.68
Vertex[  3] =  16696, length =     227.25
Vertex[  4] =  16703, length =     279.42
Vertex[  5] =  24989, length =     333.06
Vertex[  6] =  11028, length =     383.75
Vertex[  7] =  83930, length =     480.53
Vertex[  8] =  35373, length =     577.26
Vertex[  9] =  33436, length =     687.96
Vertex[ 10] =  33432, length =     766.93
Vertex[ 11] =  34708, length =     825.36
Vertex[ 12] = 190155, length =     911.36
Vertex[ 13] =   4786, length =     992.97
Vertex[ 14] =  54568, length =    1100.51
Vertex[ 15] =  33587, length =    1235.65
Vertex[ 16] =   9034, length =    1280.02
Vertex[ 17] =  36665, length =    1372.78
Vertex[ 18] =  72825, length =    1413.71
Vertex[ 19] = 131943, length =    1523.30
Vertex[ 20] =  44262, length =    1561.82
Vertex[ 21] = 106721, length =    1686.55
Vertex[ 22] =  20735, length =    1726.01
Vertex[ 23] =   4063, length =    1766.86
Vertex[ 24] =  90787, length =    1837.73
Vertex[ 25] =  93541, length =    1887.87
Vertex[ 26] =  15849, length =    1916.63
Vertex[ 27] =  81615, length =    1987.59
Vertex[ 28] = 110636, length =    2034.47
```

1.3 Dijkstra' Trace

```
graph_traversal --start 86771 --end 110636 --algorithm dijkstra --file graph_dc_area.2022-03-11.txt

Total visited vertex = 1910
Total vertex on path from start to end = 40
Vertex[  1] =   86771, length =       0.00
Vertex[  2] =   17792, length =      51.68
Vertex[  3] =   16696, length =     227.25
Vertex[  4] =   16703, length =     279.42
Vertex[  5] =   24989, length =     333.06
Vertex[  6] =   11028, length =     383.75
Vertex[  7] =   11026, length =     448.25
Vertex[  8] =   15310, length =     480.77
Vertex[  9] =   46381, length =     515.21
Vertex[ 10] =   84402, length =     563.19
Vertex[ 11] =  101294, length =     611.60
Vertex[ 12] =   21358, length =     707.90
Vertex[ 13] =   21361, length =     749.51
Vertex[ 14] =   36149, length =     773.83
Vertex[ 15] =   34708, length =     819.48
Vertex[ 16] =   96195, length =     863.77
Vertex[ 17] =   54412, length =     895.26
Vertex[ 18] =   54410, length =     926.76
Vertex[ 19] =   61363, length =     967.79
Vertex[ 20] =   61366, length =    1053.13
Vertex[ 21] =  110218, length =    1093.06
Vertex[ 22] =  110217, length =    1098.67
Vertex[ 23] =   37976, length =    1119.56
Vertex[ 24] =  127033, length =    1143.03
Vertex[ 25] =   27610, length =    1223.66
Vertex[ 26] =   22730, length =    1259.64
Vertex[ 27] =   17839, length =    1363.75
Vertex[ 28] =   17843, length =    1418.48
Vertex[ 29] =  106652, length =    1502.47
Vertex[ 30] =   59050, length =    1548.65
Vertex[ 31] =   15609, length =    1583.67
Vertex[ 32] =   15612, length =    1619.49
Vertex[ 33] =   57608, length =    1665.18
Vertex[ 34] =  181031, length =    1705.36
Vertex[ 35] =   22065, length =    1722.62
Vertex[ 36] =   22071, length =    1744.65
Vertex[ 37] =   93541, length =    1793.69
Vertex[ 38] =   15849, length =    1822.45
Vertex[ 39] =   81615, length =    1893.41
Vertex[ 40] =  110636, length =    1940.29
```

1.4 Astar' Trace

The only difference with Dijkstra is the number of visited vertices.

```
graph_traversal --start 86771 --end 110636 --algorithm astar --file graph_dc_area.2022-03-11.txt

Total visited vertex = 424
Total vertex on path from start to end = 40
Vertex[  1] =  86771, length =        0.00
Vertex[  2] =  17792, length =       51.68
Vertex[  3] =  16696, length =      227.25
Vertex[  4] =  16703, length =      279.42
Vertex[  5] =  24989, length =      333.06
Vertex[  6] =  11028, length =      383.75
Vertex[  7] =  11026, length =      448.25
Vertex[  8] =  15310, length =      480.77
Vertex[  9] =  46381, length =      515.21
Vertex[ 10] =  84402, length =      563.19
Vertex[ 11] = 101294, length =      611.60
Vertex[ 12] =  21358, length =      707.90
Vertex[ 13] =  21361, length =      749.51
Vertex[ 14] =  36149, length =      773.83
Vertex[ 15] =  34708, length =      819.48
Vertex[ 16] =  96195, length =      863.77
Vertex[ 17] =  54412, length =      895.26
Vertex[ 18] =  54410, length =      926.76
Vertex[ 19] =  61363, length =      967.79
Vertex[ 20] =  61366, length =     1053.13
Vertex[ 21] = 110218, length =     1093.06
Vertex[ 22] = 110217, length =     1098.67
Vertex[ 23] =  37976, length =     1119.56
Vertex[ 24] = 127033, length =     1143.03
Vertex[ 25] =  27610, length =     1223.66
Vertex[ 26] =  22730, length =     1259.64
Vertex[ 27] =  17839, length =     1363.75
Vertex[ 28] =  17843, length =     1418.48
Vertex[ 29] = 106652, length =     1502.47
Vertex[ 30] =  59050, length =     1548.65
Vertex[ 31] =  15609, length =     1583.67
Vertex[ 32] =  15612, length =     1619.49
Vertex[ 33] =  57608, length =     1665.18
Vertex[ 34] = 181031, length =     1705.36
Vertex[ 35] =  22065, length =     1722.62
Vertex[ 36] =  22071, length =     1744.65
Vertex[ 37] =  93541, length =     1793.69
Vertex[ 38] =  15849, length =     1822.45
Vertex[ 39] =  81615, length =     1893.41
Vertex[ 40] = 110636, length =     1940.29
```