PROJECT 2: REPORT

**FLOYD’S ALGORITHM**

**TIME PLOT-**

**A graph with a line

Description automatically generated**

Floyd’s Algorithm shows similar time performance for both data structures- this can be attributed to the fact that it is only dependent on the number of nodes in the graph and not on the data structure used to store the edges. The main performance bottleneck in the Floyd-Warshall Algorithm is the cubic iteration over the nodes as there are three nested loops that computes the shortest path. This process controls the execution time and since both the linked list and array representations produce the same adjacency matrix.

**MEMORY REPORT**

A graph with a line

Description automatically generated

**2-D ARRAY**

[ Memory Usage Report for Project2\_Input\_File/Project2\_Input\_File1.csv ]

Memory used by Graph (Matrix): 325.05 KB

Memory used by Distance Matrix: 325.05 KB

Memory used by Next Node Matrix: 325.05 KB

Peak Memory Usage: 22096.00 MB

Overall Process Memory Usage: 21.58 MB (Resident Set Size)

[ Memory Usage Report for Project2\_Input\_File/Project2\_Input\_File2.csv ]

Memory used by Graph (Matrix): 693.98 KB

Memory used by Distance Matrix: 634.71 KB

Memory used by Next Node Matrix: 634.71 KB

Peak Memory Usage: 32544.00 MB

Overall Process Memory Usage: 31.78 MB (Resident Set Size)

[ Memory Usage Report for Project2\_Input\_File/Project2\_Input\_File3.csv ]

Memory used by Graph (Matrix): 1252.80 KB

Memory used by Distance Matrix: 1231.30 KB

Memory used by Next Node Matrix: 1231.30 KB

Peak Memory Usage: 51616.00 MB

Overall Process Memory Usage: 50.41 MB (Resident Set Size)

[ Memory Usage Report for Project2\_Input\_File/Project2\_Input\_File4.csv ]

Memory used by Graph (Matrix): 1980.37 KB

Memory used by Distance Matrix: 1830.37 KB

Memory used by Next Node Matrix: 1830.37 KB

Peak Memory Usage: 77808.00 MB

Overall Process Memory Usage: 58.84 MB (Resident Set Size)

[ Memory Usage Report for Project2\_Input\_File/Project2\_Input\_File5.csv ]

Memory used by Graph (Matrix): 2620.62 KB

Memory used by Distance Matrix: 2476.51 KB

Memory used by Next Node Matrix: 2476.51 KB

Peak Memory Usage: 93184.00 MB

Overall Process Memory Usage: 70.80 MB (Resident Set Size)

[ Memory Usage Report for Project2\_Input\_File/Project2\_Input\_File6.csv ]

Memory used by Graph (Matrix): 3437.44 KB

Memory used by Distance Matrix: 3311.07 KB

Memory used by Next Node Matrix: 3311.07 KB

Peak Memory Usage: 122000.00 MB

Overall Process Memory Usage: 77.12 MB (Resident Set Size)

[ Memory Usage Report for Project2\_Input\_File/Project2\_Input\_File7.csv ]

Memory used by Graph (Matrix): 4536.09 KB

Memory used by Distance Matrix: 4512.46 KB

Memory used by Next Node Matrix: 4512.46 KB

Peak Memory Usage: 148400.00 MB

Overall Process Memory Usage: 111.14 MB (Resident Set Size)

[ Memory Usage Report for Project2\_Input\_File/Project2\_Input\_File8.csv ]

Memory used by Graph (Matrix): 5730.33 KB

Memory used by Distance Matrix: 5631.30 KB

Memory used by Next Node Matrix: 5631.30 KB

Peak Memory Usage: 209776.00 MB

Overall Process Memory Usage: 117.34 MB (Resident Set Size)