

To solve the rook-path problem, we must first represent our array of data points as a graph. This could be done with an adjacency matrix or adjacency list, but for the sake of efficiency, the latter should be used. This adjacency list would initially consist only of nodes, as the array provides no information on edges. However, these edges can be defined by connecting nodes that have the same X value or Y value. Then, with the graph constructed, we can then perform Dijkstra's Algorithm, using a defined start and end point, to determine the shortest path in the graph.

Input: *data*: array of data points

Input: *n*: number of data points

```

1  Algorithm: ShortestRookPath
2  Create an empty adjacency list adj, whose nodes have an x and y value
3  Add each element in data to adj, storing the element's x and y value
4  for j = 0 to n
5      for k = 0 to n
6          // End iteration if comparing node to itself
7          if adj[j] == adj[k] continue
8          // If two nodes have same x or y value
9          if adj[j].x == adj[k].x or adj[j].y == adj[k].y
10             Add an edge between nodes adj[j] and adj[k]
11         end
12     end
13 end
14 Use Dijkstra's Algorithm on adj to determine shortest path from given
    start and end point, return array of shortest path

```