Graph

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Space and Time Complexity of Dijkstra's algorithm

Dijkstra's algorithm time complexity is O(n^2) where n is the number of vertices. The algorithm uses two for loops each running n times this is why the time complexity is O(n^2). The space complexity of Dijkstra's algorithm is O($V + E$), where $V$is the number of vertices and E is the number of edges. In an adjacency list the algorithm must store each vertex and edge that is why the space complexity is O($V + E$). To optimize Dijkstra's algorithm we can use better and more optimized data structures such as priority queues. This brings the time complexity down to O($(V + E)logV$).