***Instructions on how does Dijkstra's Algorithm work***

### **Condition:**

1. All edges must have nonnegative weights (numbers).
2. Graph must be connected
3. Always use the shortest path
4. The position (vertex) where you start is called the “initial node”
5. The position where you want to go to is called the “destination node”
6. Shade the starting vertex and label it 0 (since it's the starting point and no distance has been traveled)
   1. Keep all the other vertices blank
7. Look at the distance/cost from initial node to all adjacent nodes (nodes that are directly connected to the starting node)
   1. Above each adjacent node write the distance from the starting node
      1. This is a tentative number that may change
8. After you visit all nodes adjacent to the initial node, pick the node that has the shortest/cheapest distance from your starting point.
   1. Color the line that connects it to the starting node.
9. Now repeat steps 3 and 4 to find the node that is the shortest distance away but add the initial distance to this value. (example: If you start at node A and the shortest distance is node C, which is 2 points away and the shortest distance to node C is node E which is 5 points away, add the distance from point A to point C with the distance from point C to point E 2+5 = 7 )
   1. That is the value of A to E so write this value on top of node E
   2. Color the line that is used in order to connect E with the starting node.
10. Repeat the process until you reach the final node.