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1BM19CS400

07/12/2020

Write-up

Given a graph and a Source vertex in a graph, find Shortest path from Source to all other points in given graph.

```
import Sys
Class Graph():
    def _init_( Self, vertices):
        Self.V = Vertices
        Self.graph = [[0 for column in range(vertices)]
                        for row in range(vertices)]

    def Print Solution( Self,dist):
        Print (" vertex t- Distance from Source")
        for node in range( Self.V):
            Print ( node, "t", dist[node])

    def minDistance( Self. dist, sptset):
        min = sys. maxsize
        for v in range(Self.V):
            if dist(v] < min and sptSet[v] == False:
                min = dist[v]
                min_index = v

        return  min_index
```

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```
def dijkstra(self, src):
    dist = [sys.maxsize] * self.v
    dist[src]=0
    sptset = [False]+ self.v
    for cout in range(self.v):
        u= Self. minDistance(dist, sptset)
        Sptset[u]= True
        for v in range(self.v):
            if Self.graph[u][v] > 0 and \
            Sptset[v] == False and \
            dist[v] > dist[u]+ Self.graph[u][v]:
            dist[v] = dist[u] + Self.graph[u][v]
    Self.printsolution(dist)
```

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