EXP - 10

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Question: Demonstrate Dijkstras algorithm

Ans:

code:

```
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 printsolution(self, dist):
        print("vertex \t distance from source")
        for node in range(self.V):
            print(node, "\t", dist[node])
    def minDistance(selfff, 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
    def dijkstra(self, src):
```

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```
dist = [sys.maxsize] * self.V
dist[src] = 0
sptSet = [false] * self.V
for count 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)
g = Graph(6)
g.graph = [[0, 4, 0, 0, 0, 2],
           [4, 0, 5, 0, 0, 1],
           [0, 5, 0, 6, 2, 8],
           [0, 0, 6, 0, 5, 0],
           [0, 0, 2, 5, 0, 10];
           [2, 1, 8, 0, 10, 0];
           ];
g.dijkstra(0);
```

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