CN LAB

K. ARUN TEJA
1BM18CS041
5A

⑧ Write-Up

```
class Network:
    def __init__(self, n):
        self.matrix = []
        self.n = n

    def addlink(self, u, v, w):
        self.matrix.append((u, v, w))

    def printtable(self, dist, src, fromn):
        print("Each destination router and distance from router-{}".
              format(chr(ord('A') + src)))
        for i in range(self.n):
            print("{0}\t{1}".format(chr(ord('A')+i),
                  dist[i]))
            print("Next hop address is:{}".format(chr
                  (ord('A') + fromn[i][i])))

    def algor(self, src, fromn):
        dist = [99] * self.n
        dist[src] = 0
        for _ in range(self.n - 1):
            for u, v, w in self.matrix:
                if dist[u] != 99 and dist[u] + w < dist[v]:
                    dist[v] = dist[u] + w
                    fromn[u][v] = v
        self.printtable(dist, src, fromn)
```

```
def main():
    matrix = []
    print("Enter no. of nodes:")
    n = int(input())
    fromn = [[0 for i in range(n)] for j in range(n)]
    print("Enter distance matrix:")
    for in in range(n):
        m = list(map(int, input().split(" ")))
        matrix.append(m)
    g = network(n)
    for i in range(n):
        for j in range(n):
            if matrix[i][j] != 99
                g.addlink(i,j, matrix[i][j])
                fromn[i][j] = j

    for _ in range(n):
        g.algori(_, fromn)

main()
```