In [1]:

```
inf = 1000

def tsp(distance,source_city,N,visited,path):
  cost = 0
  count = 0

  current = source_city
  visited[source_city] = 1

  while count != N-1:
    minD = inf
    for i in range(N):
      if distance[current][i] < minD and visited[i]==0:
        minD = distance[current][i]
        minIndex = i
    visited[minIndex] = 1
    current = minIndex
    path.append(current+1)
    cost+=minD
    count+=1

  cost+=distance[current][source_city]
  path.append(source_city+1)

  return cost
```

In [2]:

```

if __name__ == '__main__':
    distance = [
        [inf, 10,  15,  20],
        [10,  inf, 35,  25],
        [15,  35,  inf, 30],
        [20,  25,  30,  inf]
    ]

    source_city = 0
    visited = [0]*4

    path = []
    path.append(source_city+1)
    cost = tsp(distance,source_city,4,visited,path);
    print("Cost:",cost)
    for i in path:
      print(i,"->",end="")
```

```
Cost: 80
1 ->2 ->4 ->3 ->1 ->
```