**TASK 1:**

**Write Python programs to implement Hill Climbing and solve the salesman travelling problem with respect to hill climbing algorithm**

**CODE:**

*# Owned*

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*#===============================================================*

*# {code}*

*from* sys *import* maxsize

*from* itertools *import* permutations

V *=* 4

*def* *travellingSalesmanProblem*(graph, q):

    vertex *=* []

*for* i *in* range(V):

*if* i *!=* q:

            vertex.append(i)

    min\_path *=* maxsize

    next\_permutation*=*permutations(vertex)

*for* i *in* next\_permutation:

        current\_pathweight *=* 0

        k *=* q

*for* j *in* i:

            current\_pathweight *+=* graph[k][j]

            k *=* j

        current\_pathweight *+=* graph[k][q]

        min\_path *=* min(min\_path, current\_pathweight)

*return* min\_path

*if* \_\_name\_\_ *==* "\_\_main\_\_":

    graph *=* [[200, 210, 215, 220], [210, 200, 235, 225],

            [215, 235, 200, 230], [220, 225, 230, 200]]

    q *=* 3

    print(travellingSalesmanProblem(graph, q))

**OUTPUT:**

