**TASK 1:**

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

**CODE:**

from sys import maxsize

from itertools import permutations

V = 4

def travellingSalesmanProblem(graph, s):

    vertex = []

    for i in range(V):

        if i != s:

            vertex.append(i)

    min\_path = maxsize

    next\_permutation=permutations(vertex)

    for i in next\_permutation:

        current\_pathweight = 0

        k = s

        for j in i:

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

            k = j

        current\_pathweight += graph[k][s]

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

    return min\_path

if \_\_name\_\_ == "\_\_main\_\_":

    graph = [[0, 10, 15, 20], [10, 0, 35, 25],

            [15, 35, 0, 30], [20, 25, 30, 0]]

    s = 0

    print(travellingSalesmanProblem(graph, s))

**OUTPUT:**

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