

travelling\_salesman\_problem.py · C:/Users/DRKR/Desktop/ai programs/travelling salesman

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```
from sys import maxsize
```

```
v = 4
```

```
def travelling_salesman_function(graph, s):  
    vertex = []  
    for i in range(v):  
        if i != s:  
            vertex.append(i)  
  
    min_path = maxsize  
    while True:  
        current_cost = 0  
        k = s  
        for i in range(len(vertex)):  
            current_cost += graph[k][vertex[i]]  
            k = vertex[i]  
        current_cost += graph[k][s]  
        min_path = min(min_path, current_cost)  
  
        if not next_perm(vertex):  
            break  
    return min_path
```

```
def next_perm(l):  
    n = len(l)  
    i = n-2  
  
    while i >= 0 and l[i] > l[i+1]:  
        i -= 1  
  
    if i == -1:  
        return False  
  
    j = i+1  
    while j < n and l[j] > l[i]:  
        j += 1
```

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Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64-bit AMD64] on win32

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```
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>>> |
```

travelling\_salesman\_problem.py - C:/Users/DRKR/Desktop/ai programs/travelling salesman p  
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```
        if not next_perm(vertex):  
            break  
        return min_path  
  
def next_perm(l):  
    n = len(l)  
    i = n-2  
  
    while i >= 0 and l[i] > l[i+1]:  
        i -= 1  
  
    if i == -1:  
        return False  
  
    j = i+1  
    while j < n and l[j] > l[i]:  
        j += 1  
  
    j -= 1  
  
    l[i], l[j] = l[j], l[i]  
    left = i+1  
    right = n-1  
  
    while left < right:  
        l[left], l[right] = l[right], l[left]  
        left += 1  
        right -= 1  
  
    return True  
  
graph = [[0,10,15,20], [10,0,35,25], [15,35,0,30], [20,25,30,0]  
s = 0  
res = travelling_salesman_function(graph,s)  
print(res)
```

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```
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```