EXPERIMENT-18

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Course: CSA1789 Artificial Intelligence

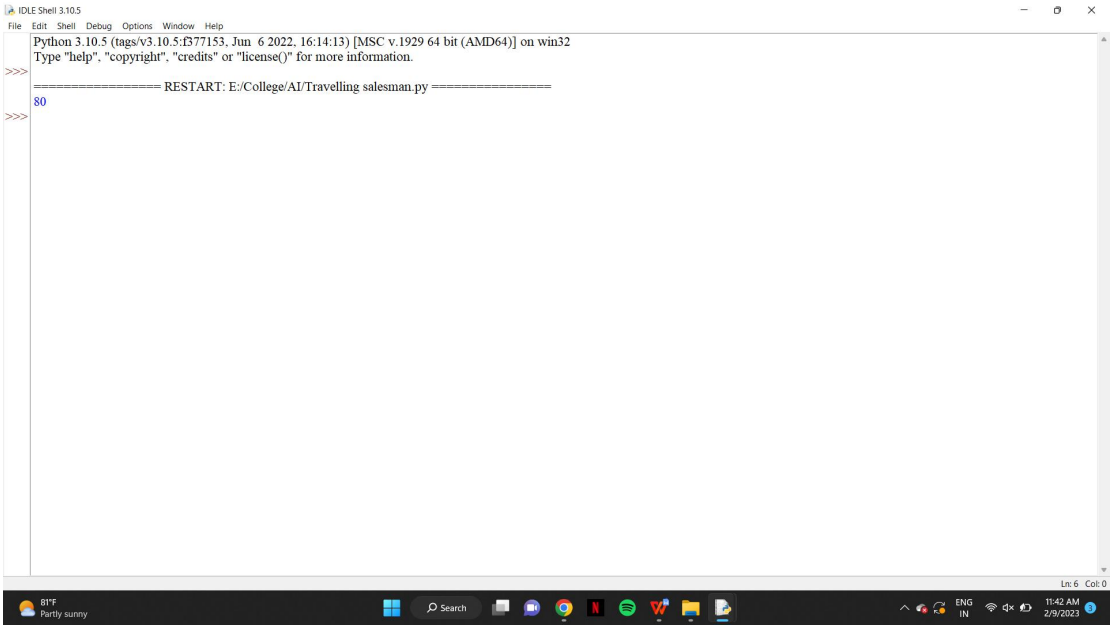
Q) Write the python to implement Travelling Salesman Problem

Program:

```
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:


IDLE Shell 3.10.5
File Edit Shell Debug Options Window Help
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: E:/College/AI/Travelling salesman.py ==========
80
>>>
Ln: 6 Col: 0
81°F
Partly sunny
Search
ENG
IN
11:42 AM
2/9/2023