Started on	Tuesday, 23 September 2025, 1:53 PM
State	Finished
Completed on	Tuesday, 23 September 2025, 2:33 PM
Time taken	40 mins 1 sec
Grade	**100.00** out of 100.00

Question **1**

Correct

Mark 20.00 out of 20.00

Create a python program for 0/1 knapsack problem using naive recursion method

For example:

Test	Input	Result
knapSack(W, wt, val, n)	3 3 50 60 100 120 10 20 30	The maximum value that can be put in a knapsack of capacity W is: 220

Answer: (penalty regime: 0 %)

Reset answer

```
def knapSack(W, wt, val, n):
    if W==0 or n==0:
        return 0
    if wt[n-1]>W:
        return knapSack(W,wt,val,n-1)
    else:
        inc=val[n-1]+knapSack(W-wt[n-1],wt,val,n-1)
        exc=knapSack(W,wt,val,n-1)
        return max(inc,exc)

x=int(input())
y=int(input())
W=int(input())
val=[]
wt=[]
for i in range(x):
    val.append(int(input()))
for y in range(y):
    wt.append(int(input()))

n = len(val)
```

	Test	Input	Expected	Got	
✔	knapSack(W, wt, val, n)	3 3 50 60 100 120 10 20 30	The maximum value that can be put in a knapsack of capacity W is: 220	The maximum value that can be put in a knapsack of capacity W is: 220	✔

	Test	Input	Expected	Got	
✔	knapSack(W, wt, val, n)	3 3 55 65 115 125 15 25 35	The maximum value that can be put in a knapsack of capacity W is: 190	The maximum value that can be put in a knapsack of capacity W is: 190	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.

Question **2**

Correct

Mark 20.00 out of 20.00

Create a python program using brute force method of searching for the given substring in the main string.

For example:

Test	Input	Result
match(str1,str2)	AABAACAADAABAABA AABA	Found at index 0 Found at index 9 Found at index 12

Answer: (penalty regime: 0 %)

Reset answer

```
def match(string,sub):
    l = len(string)
    ls = len(sub)
    start = sub[0]
    for i in range(l-ls+1):
        j=0
        while j<ls and string[i+j]==sub[j]:
            j+=1
        if j==ls:
            print('Found at index',i)
    return -1

str1=input()
str2=input()
```

	Test	Input	Expected	Got	
✔	match(str1,str2)	AABAACAADAABAABA AABA	Found at index 0 Found at index 9 Found at index 12	Found at index 0 Found at index 9 Found at index 12	✔
✔	match(str1,str2)	saveetha savee	Found at index 0	Found at index 0	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.

Question **3**

Correct

Mark 20.00 out of 20.00

Create a python program to for the following problem statement.

You are given an `n x n grid` representing a field of cherries, each cell is one of three possible integers.

- `0` means the cell is empty, so you can pass through,
- `1` means the cell contains a cherry that you can pick up and pass through, or
- `-1` means the cell contains a thorn that blocks your way.

Return *the maximum number of cherries you can collect by following the rules below*:

- Starting at the position `(0, 0)` and reaching `(n - 1, n - 1)` by moving right or down through valid path cells (cells with value `0` or `1`).
- After reaching `(n - 1, n - 1)`, returning to `(0, 0)` by moving left or up through valid path cells.
- When passing through a path cell containing a cherry, you pick it up, and the cell becomes an empty cell `0`.
- If there is no valid path between `(0, 0)` and `(n - 1, n - 1)`, then no cherries can be collected.

For example:

Test	Result
obj.cherryPickup(grid)	5

Answer: (penalty regime: 0 %)

Reset answer

```
class Solution(object):
    def cherryPickup(self, grid):
        rows = len(grid)
        cols = len(grid[0])
        memo={}
        def dp(r,c1,c2):
            if r==rows or c1<0 or c1==cols or c2<0 or c2==cols:
                return 0
            if (r,c1,c2) in memo:
                return memo[(r,c1,c2)]
            cherries=grid[r][c1]+(grid[r][c2] if c1!=c2 else 0)
            maxcherries=0
            for dc1 in [-1,0,1]:
                for dc2 in [-1,0,1]:
                    maxcherries=max(maxcherries,dp(r+1,c1+dc1,c2+dc2))
            result=cherries+maxcherries
            memo[(r,c1,c2)]=result
            return result


        return dp(0,0,cols - 1)

```

	Test	Expected	Got	
✔	obj.cherryPickup(grid)	5	5	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.

Question **4**

Correct

Mark 20.00 out of 20.00

Write a Python Program to find minimum number of swaps required to sort an float array given by the user.

For example:

Test	Input	Result
minSwaps(arr)	5 2.3 6.5 4.1 9.5 7.5	2
minSwaps(arr)	6 3.2 1.4 5.6 9.2 4.5 6.2	4

Answer: (penalty regime: 0 %)

```
def minSwaps(arr):
    n = len(arr)
    arr_pos = [(value, index) for index, value in enumerate(arr)]
    arr_pos.sort(key=lambda x: x[0])
    visited = [False] * n
    swaps = 0
    for i in range(n):
        if visited[i] or arr_pos[i][1] == i:
            continue
        cycle_size = 0
        j = i
        while not visited[j]:
            visited[j] = True
            j = arr_pos[j][1]
            cycle_size += 1
        if cycle_size > 1:
            swaps += (cycle_size - 1)
    return swaps

n = int(input())
arr = [float(input()) for i in range(n)]
print(minSwaps(arr))
```

	Test	Input	Expected	Got	
✔	minSwaps(arr)	5 2.3 6.5 4.1 9.5 7.5	2	2	✔

	Test	Input	Expected	Got	
✔	minSwaps(arr)	6 3.2 1.4 5.6 9.2 4.5 6.2	4	4	✔
✔	minSwaps(arr)	4 2.3 6.1 4.2 3.1	1	1	✔

Passed all tests! ✔

Correct

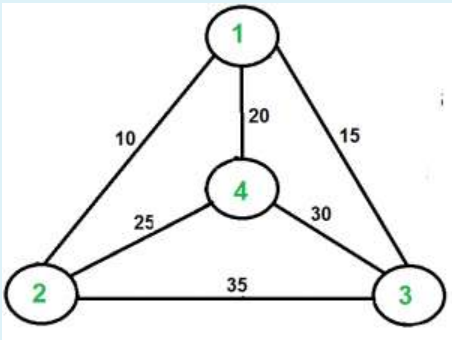
Marks for this submission: 20.00/20.00.

Question **5**

Correct

Mark 20.00 out of 20.00

Solve Travelling Sales man Problem for the following graph



Answer: (penalty regime: 0 %)

Reset answer

```
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

        # compute current path weight
        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
```

	Expected	Got	
✔	80	80	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.