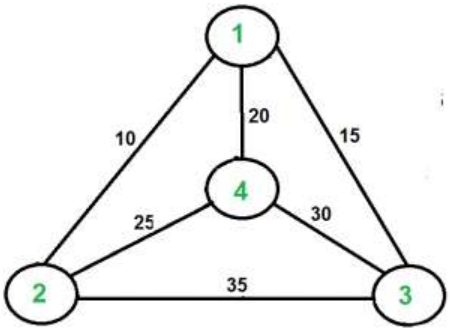
Started on	Friday, 9 May 2025, 2:13 PM
State	Finished
Completed on	Friday, 9 May 2025, 2:41 PM
Time taken	28 mins 33 secs
Grade	**100.00** out of 100.00

Question **1**

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
        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],
```

	Expected	Got	
✔	80	80	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.

Question **2**

Correct

Mark 20.00 out of 20.00

Write a python program to implement quick sort using last element as pivot on the given list of integers.

For example:

Test	Input	Result
quickSort(arr,0,n-1)	6 21 54 30 12 10 6	Sorted array is: 6 10 12 21 30 54

Answer: (penalty regime: 0 %)

```
def quickSort(alist,start,end):
    if end - start > 1:
        p=partition(alist,start,end)
        quickSort(alist,start,p)
        quickSort(alist,p+1,end)


def partition(alist,start,end):
    pivot=alist[start]
    i=start+1
    j=end-1
    while True:
        while(i<=j and alist[i]<=pivot):
            i=i+1
        while(i<=j and alist[j]>=pivot):
            j=j-1

        if i<=j:
            alist[i],alist[j]=alist[j],alist[i]
        else:
            alist[start],alist[j]=alist[j],alist[start]
            return j
```

	Test	Input	Expected	Got	
✔	quickSort(arr,0,n-1)	6 21 54 30 12 10 6	Sorted array is: 6 10 12 21 30 54	Sorted array is: 6 10 12 21 30 54	✔
✔	quickSort(arr,0,n-1)	5 41 21 30 12 98	Sorted array is: 12 21 30 41 98	Sorted array is: 12 21 30 41 98	✔

	Test	Input	Expected	Got	
✔	quickSort(arr,0,n-1)	8 2 6 7 4 9 3 1 5	Sorted array is: 1 2 3 4 5 6 7 9	Sorted array is: 1 2 3 4 5 6 7 9	✔

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:
    def cherryPickup(self, grid):
        n = len(grid)
        #Start here
        dp = [[-1] * (n + 1) for _ in range(n + 1)]
        dp[1][1] = grid[0][0]
        for m in range(1, (n << 1) - 1):
            for i in range(min(m, n - 1), max(-1, m - n), -1):
                for p in range(i, max(-1, m - n), -1):
                    j, q = m - i, m - p
                    if grid[i][j] == -1 or grid[p][q] == -1:
                        dp[i + 1][p + 1] = -1
                    else:
                        dp[i + 1][p + 1] = max(dp[i + 1][p + 1], dp[i][p + 1], dp[i + 1][p], dp[i][p]
                        if dp[i + 1][p + 1] != -1: dp[i + 1][p + 1] += grid[i][j] + (grid[p][q] if i
        return max(0, dp[-1][-1])
        n,m=len(grid),len(grid[0])
        dp = [[[-1 for i in range(m)] for j1 in range(n)] for j2 in range(n)]
        return f(0,0,m-1,dp)
obj=Solution()
grid=[[0,1,-1],[1,0,-1],[1,1,1]]

```

	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

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):
    #Start here
    if n == 0 or W == 0 :
        return 0
    if (wt[n-1] > W):
        return knapSack(W, wt, val, n-1)
    else:
        return max(val[n-1] + knapSack(W-wt[n-1], wt, val, n-1), knapSack(W, wt, val, n-1))
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)
print('The maximum value that can be put in a knapsack of capacity W is: ',knapSack(W, wt, val, n))
```

	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 **5**

Correct

Mark 20.00 out of 20.00

Create a python program to find the maximum value in linear search.

For example:

Test	Input	Result
find_maximum(test_scores)	10 88 93 75 100 80 67 71 92 90 83	Maximum value is 100

Answer: (penalty regime: 0 %)

Reset answer

```
def find_maximum(lst):
    max=None
    for i in lst:
        if max == None or i > max:
            max = i
    return max
test_scores = []
n=int(input())
for i in range(n):
    test_scores.append(int(input()))
print("Maximum value is ",find_maximum(test_scores))
```

	Test	Input	Expected	Got	
✔	find_maximum(test_scores)	10 88 93 75 100 80 67 71 92 90 83	Maximum value is 100	Maximum value is 100	✔

	Test	Input	Expected	Got	
✔	find_maximum(test_scores)	5 45 86 95 76 28	Maximum value is 95	Maximum value is 95	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.