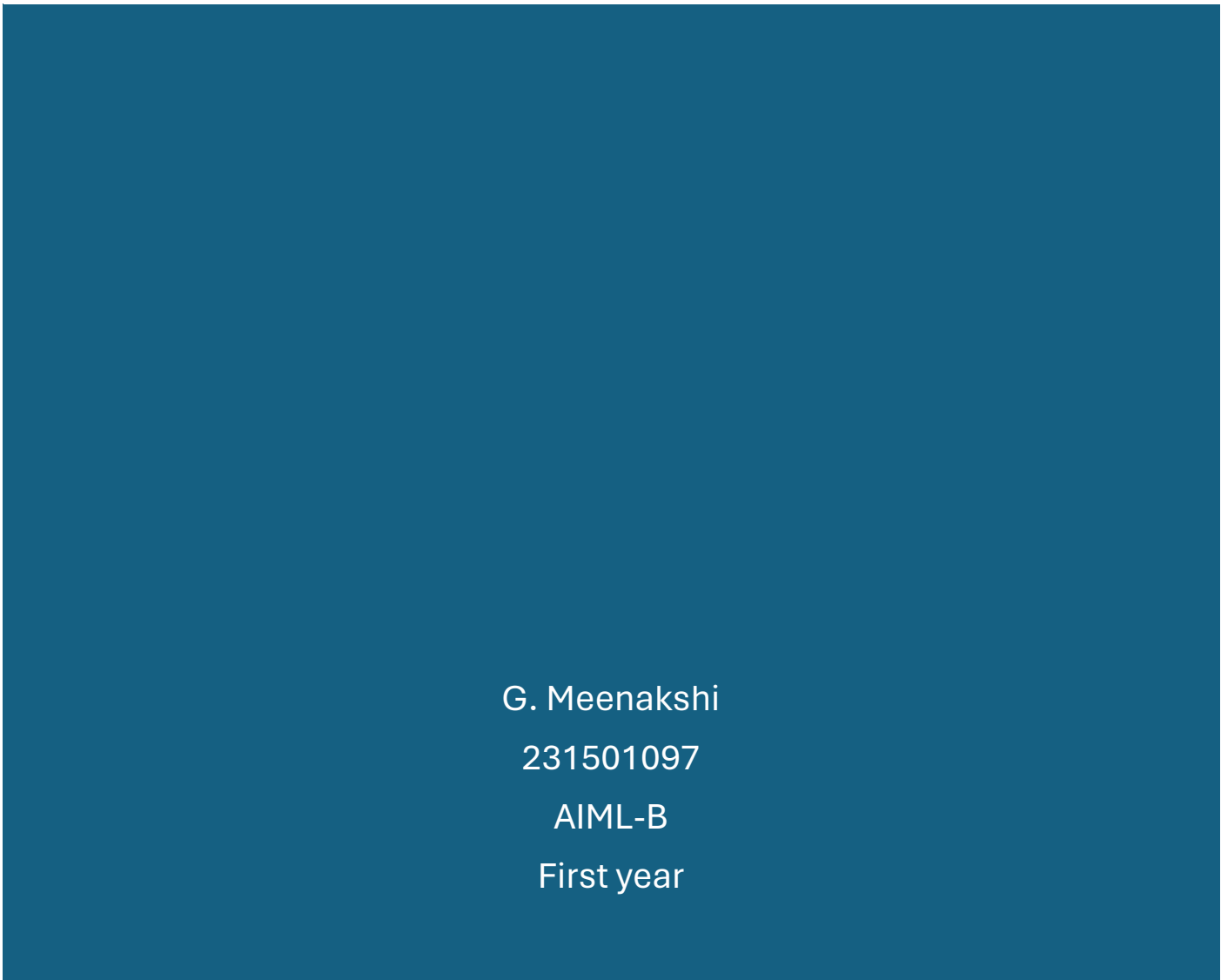


PYTHON MOODLE CODES: WEEK 10

[CS23231]




G. Meenakshi
231501097
AIML-B
First year

Week10_Coding: Attempt review

ChatGPT

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Question 1

Correct

Mark 1.00 out of 1.00

Flag question

Bubble Sort is the simplest sorting algorithm that works by repeatedly swapping the adjacent elements if they are in wrong order. You read an list of numbers. You need to arrange the elements in ascending order and print the result. The sorting should be done using bubble sort.

Input Format: The first line reads the number of elements in the array. The second line reads the array elements one by one.

Output Format: The output should be a sorted list.

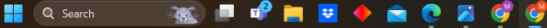
For example:

Input	Result
6 3 4 8 7 1 2	1 2 3 4 7 8
5 4 5 2 3 1	1 2 3 4 5

Answer: (penalty regime: 0 %)

```
1. def bubble_sort(arr):
2.     n = len(arr)
3.     for i in range(n):
4.         # Flag to check if any swap is made in this pass
5.         swapped = False
6.
7.         # Last i elements are already in place, so we don't need to check them
8.         for j in range(0, n-i-1):
9.             # Swap if the element found is greater than the next element
10.            if arr[j] > arr[j+1]:
11.                arr[j], arr[j+1] = arr[j+1], arr[j]
12.                swapped = True
13.
```

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ENG IN 1920 10-06-2024

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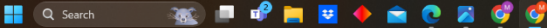
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Answer: (penalty regime: 0 %)

```
1. def bubble_sort(arr):
2.     n = len(arr)
3.     for i in range(n):
4.         # Flag to check if any swap is made in this pass
5.         swapped = False
6.
7.         # Last i elements are already in place, so we don't need to check them
8.         for j in range(0, n-i-1):
9.             # Swap if the element found is greater than the next element
10.            if arr[j] > arr[j+1]:
11.                arr[j], arr[j+1] = arr[j+1], arr[j]
12.                swapped = True
13.
14.         # If no two elements were swapped in the inner loop, the array is sorted
15.         if not swapped:
16.             break
17.
18.     return arr
19.
20. # Reading input
21. n = int(input())
22. arr = list(map(int, input().split()))
23.
24. # Sorting the array using Bubble Sort
25. sorted_arr = bubble_sort(arr)
26.
27. # Printing the sorted array
28. for num in sorted_arr:
29.     print(num, end=' ')
30.
```

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```
21 n = int(input())
22 arr = list(map(int, input().split()))
23
24 # Sorting the array using Bubble Sort
25 sorted_arr = bubble_sort(arr)
26
27 # Printing the sorted array
28 for num in sorted_arr:
29     print(num, end=' ')
30
```

	Input	Expected	Got	
✓	6 3 4 8 7 1 2	1 2 3 4 7 8	1 2 3 4 7 8	✓
✓	6 9 18 1 3 4 6	1 3 4 6 9 18	1 3 4 6 9 18	✓
✓	5 4 5 2 3 1	1 2 3 4 5	1 2 3 4 5	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

To find the frequency of numbers in a list and display in sorted order.

Constraints:

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Question 2

Correct

Mark 1.00 out of 1.00

Flag question

To find the frequency of numbers in a list and display in sorted order.

Constraints:

$1 \leq n, \text{arr}[i] \leq 100$

Input:

1 68 79 4 90 68 1 4 5

output:

1 2
4 2
5 1
68 2
79 1
90 1

For example:

Input	Result
4 3 5 3 4 5	3 2 4 2 5 2


Answer: (penalty regime: 0 %)

```
1 def count_frequency(arr):
2     frequency = {}
3     for num in arr:
```

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4	3	5	3	4	5
3	2				
4	2				
5	2				

Answer: (penalty regime: 0 %)


```
1. def count_frequency(arr):
2.     frequency = {}
3.     for num in arr:
4.         if num in frequency:
5.             frequency[num] += 1
6.         else:
7.             frequency[num] = 1
8.     return frequency
9.
10. # Reading input
11. arr = list(map(int, input().split()))
12.
13. # Counting frequency
14. frequency = count_frequency(arr)
15.
16. # Sorting the dictionary based on keys
17. sorted_frequency = sorted(frequency.items())
18.
19. # Printing the sorted frequency
20. for num, freq in sorted_frequency:
21.     print(num, freq)
22.
```

Input	Expected	Got
✓ 4 3 5 3 4 5	3 2	3 2 ✓

Week10_Coding: Attempt review

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```
15.
16. # Sorting the dictionary based on keys
17. sorted_frequency = sorted(frequency.items())
18.
19. # Printing the sorted frequency
20. for num, freq in sorted_frequency:
21.     print(num, freq)
22.
```

Input	Expected	Got
✓ 4 3 5 3 4 5	3 2	3 2 ✓
	4 2	4 2
	5 2	5 2
✓ 12 4 4 4 2 3 5	2 1	2 1 ✓
	3 1	3 1
	4 3	4 3
	5 1	5 1
	12 1	12 1
✓ 5 4 5 4 6 5 7 3	3 1	3 1 ✓
	4 2	4 2
	5 3	5 3
	6 1	6 1
	7 1	7 1

Passed all tests! ✓

Correct
Marks for this submission: 1.00/1.00.

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M2

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

An list contains N numbers and you want to determine whether two of the numbers sum to a given number K. For example, if the input is 8, 4, 1, 6 and K is 10, the answer is yes (4 and 6). A number may be used twice.

Input Format

The first line contains a single integer n , the length of list

The second line contains n space-separated integers, list[i].

The third line contains integer k.

Output Format

Print Yes or No.

Sample Input

```
7
0 1 2 4 6 5 3
1
```

Sample Output

```
Yes
```

For example:

Input	Result
5	Yes
8 9 12 15 3	
11	
6	No
2 9 21 32 43 43 1	
4	

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Answer: (penalty regime: 0 %)

```
1- def two_sum_exists(arr, k):
2-     num_set = set()
3-     for num in arr:
4-         complement = k - num
5-         if complement in num_set:
6-             return "Yes"
7-         num_set.add(num)
8-     return "No"
9-
10- # Reading input
11- n = int(input())
12- arr = list(map(int, input().split()))
13- k = int(input())
14-
15- # Checking if two numbers sum up to k
16- result = two_sum_exists(arr, k)
17-
18- # Printing the result
19- print(result)
20-
```

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```
12 arr = list(map(int, input().split()))
13 k = int(input())
14
15 # Checking if two numbers sum up to k
16 result = two_sum_exists(arr, k)
17
18 # Printing the result
19 print(result)
20
```

	Input	Expected	Got	
✓	5	Yes	Yes	✓
	8 9 12 15 3			
	11			
✓	6	No	No	✓
	2 9 21 32 43 1			
	4			
✓	6	Yes	Yes	✓
	13 42 31 4 8 9			
	17			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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17

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Question 4

Correct

Mark 1.00 out of 1.00

Flag question

Write a Python program for binary search.

For example:

Input	Result
1,2,3,5,8	False
6	
3,5,9,45,42	True
42	

Answer: (penalty regime: 0 %)

```
1 s=input()
2 ll=[int(x) for x in s.split(',')]
3 k=int(input())
4 if k in ll:
5     print("True")
6 else:
7     print("False")
```

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Input Expected Got

✓ 1,2,3,5,8 6	False	False	✓
✓ 3,5,9,45,42 42	True	True	✓
✓ 52,45,89,43,11 11	True	True	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Question 5
Correct
Mark 1.00 out of 1.00
Flag question

Write a Python program to sort a list of elements using the merge sort algorithm.

For example:

Input	Result
5 6 5 4 3 8	3 4 5 6 8

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Question 5
Correct
Mark 1.00 out of 1.00
Flag question

Write a Python program to sort a list of elements using the merge sort algorithm.

For example:

Input	Result
5 6 5 4 3 8	3 4 5 6 8

Answer: (penalty regime: 0 %)

```
1. def merge_sort(arr):  
2.     if len(arr) > 1:  
3.         mid = len(arr) // 2  
4.         left_half = arr[:mid]  
5.         right_half = arr[mid:]  
6.  
7.         merge_sort(left_half)  
8.         merge_sort(right_half)  
9.  
10.        i = j = k = 0  
11.  
12.        # Merge the two sorted halves  
13.        while i < len(left_half) and j < len(right_half):  
14.            if left_half[i] < right_half[j]:  
15.                arr[k] = left_half[i]  
16.                i += 1  
17.            else:  
18.                arr[k] = right_half[j]  
19.                j += 1  
20.                k += 1  
21.  
22.        # Check if any elements are remaining in left_half and right_half  
23.        while i < len(left_half):  
24.            arr[k] = left_half[i]
```

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```
10 i = j = k = 0
11
12 # Merge the two sorted halves
13 while i < len(left_half) and j < len(right_half):
14     if left_half[i] < right_half[j]:
15         arr[k] = left_half[i]
16         i += 1
17     else:
18         arr[k] = right_half[j]
19         j += 1
20     k += 1
21
22 # Check if any elements are remaining in left_half and right_half
23 while i < len(left_half):
24     arr[k] = left_half[i]
25     i += 1
26     k += 1
27
28 while j < len(right_half):
29     arr[k] = right_half[j]
30     j += 1
31     k += 1
32
33 def main():
34     n = int(input())
35     arr = list(map(int, input().split()))
36
37     merge_sort(arr)
38     print(' '.join(map(str, arr)))
39
40 if __name__ == "__main__":
41     main()
42
```

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```
32
33 def main():
34     n = int(input())
35     arr = list(map(int, input().split()))
36
37     merge_sort(arr)
38     print(' '.join(map(str, arr)))
39
40 if __name__ == "__main__":
41     main()
42
```

	Input	Expected	Got	
✓	5 6 5 4 3 8	3 4 5 6 8	3 4 5 6 8	✓
✓	9 14 46 43 27 57 41 45 21 70	14 21 27 41 43 45 46 57 70	14 21 27 41 43 45 46 57 70	✓
✓	4 86 43 23 49	23 43 49 86	23 43 49 86	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Finish review