Department of Computer Science and Engineering
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Lecture Notes
Python for Computational Problem Solving
UE23CS151A

Lecture #30, #33
Problem Solving using Lists

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Programs on Lists

Try solving these problem statements. Solutions are available in this link:

https://drive.google.com/file/d/1ozMcf5UgYUn5gqCCx3xKBPbBAwwKI1t

B/view?usp=drive_link

1. Given a list, print the elements of the list in separate lines.

2. Given an empty list, insert n elements to list.

3. Given a list, create a new list consisting of squares of all elements from the list.

4. Given a list, create a new list consisting of square roots of all elements from the list.

5. Given a list, Find the leftmost even number if any in a list. Else, display appropriate message.

6. Given a list of integers, add the number n to each element of the list and print the same list.

7. Program to find the absolute difference between successive elements of a given list and this difference must be stored in the new list. Display the new list.

8. Given a list of heterogenous elements, create different lists based on the type of elements in the list.

9. Program to create a list of all even numbers between 1 and 20 that are not divisible by 4. Display the list.

10. Given a list of elements, create a new list which contains all elements from the given list without any duplication in the new list. Display the new list.

11. Given a list, create a new list which is sorted. The original list must not be sorted. Display the sorted new list.

12. Find the left most element from the list which is greater than the given elements.

13. Create a list of numbers 1 to n except n//2

14. Create a list and fill it with numbers from n to 1 and then to 2 to n (inclusive)

    # Example: if n = 4, then list is [4, 3, 2, 1, 2, 3, 4]

15. Create a list of three rows as shown below and print the nested list

    # 0th row should have numbers from 1 to n.

    # 1st row should have squares of numbers from 1 to n.

    # 2nd row should have cubes of numbers from 1 to n

    # Example: if n = 3, the list should have [[1, 2, 3], [1, 4, 9],[1,8,27]]

16. To find the sum 1 * 2 + 2 * 3 + upto n terms. Display the sequence.

    Example : if n = 4, then the output should be

    1 * 2 + 2 * 3 + 3 * 4 + 4 * 5 = 40.

17. Program to print the count of all numbers which are divisible by 3 in a given list.

18. Program to create two lists from the given list- one for all even integers and the other for all odd integers. Consider only positive integers

19. Program to find and display the sum of even integers and the sum of odd integers separately for an input n, number of integers in the list.

    Hint: Create a list of n elements from the user.

20. Program to read the marks of 5 subjects from the user and store it in a list and print the sum and average.

21. Program to create a list of numbers between 1 and n if the number is divisible by 2 and not divisible by 3. Display the list.

22. Merge two lists such that new list contains one from first and the other from second. once the list is complete, append all from the longer list to the new list.

    Example: m = [23,45,67]   n = [12,65,98,23,55]

    Output_list = [23,12,45,65,67,98,23,55]

23. Three lists given

    l1 = [11,22,14]
    l2 = [45,77,88]
    l3 = [90,99,55,10]
    output_list = [[11,45,90],[22,77,99],[14,88,55]]

24. Three lists given. Output must be sum of all numbers in that corresponding index

    l1 = [11,22,14]
    l2 = [45,77,88]
    l3 = [90,99,55,10]
    Expected output_list = [146, 198, 157] #sum1,sum2,sum3

25. Three lists given. New list should have the remainder of every element divided by 10 in that index

    l1 = [11,22,14]
    l2 = [45,77,88]
    l3 = [90,99,55,10]
    Expected output_list = [[1,5,0],[2,7,9],[4,8,5]]

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