

## Assignment: Lists

### Section A: Theory Questions

1. What is a List?
  2. What is the difference between List and Tuple?
  3. What are the ways to find the length of a list?
  4. What's the difference between the Python `append()` and `extend()` methods?
  5. What is the difference between `del` and `clear`?
  6. What is the difference between `remove` and `pop`?
  7. What is the difference between indexing and slicing?
  8. What is the difference between `sort` and `sorted`?
  9. What is the difference between `reverse` and `reversed`?
  10. What is the difference between `copy` and deep copy?
  11. How to check whether a list is empty or not?
  12. How to concatenate two lists?
  13. How to find the occurrences of an element in a Python list?
  14. How to flatten a list in Python?
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### Section B: Python Programming Questions

15. Python program to find the largest element in a list.
16. Python program to interchange the first and last elements in a list.
17. Python program to swap two elements in a list.
18. Python program to reverse a list.
19. Python program to count occurrences of an element in a list.
20. Python program to find the sum of elements in a list.
21. Python program to multiply all numbers in a list.
22. Python program to find the smallest and largest number in a list (without using `min` and `max`).
23. Python program to find the area of a circle (Take input as radius).
24. Take inputs from the user to make a list. Again, take one input from the user and search for it in the list, then delete that element if found. Iterate over a list using a `for` loop.
25. You are given a list of integer elements. Make a new list that will store the squares of elements of the previous list (With and without list comprehension).
  - **Input:** `[2, 5, 6, 12]`
  - **Output:** `[4, 25, 36, 144]`

26. Write a Python program to create two lists: one containing all even numbers and the other containing all odd numbers between 0 to 151.
27. Python program to count even and odd numbers in a list.
28. Write a Python program to create new lists containing only numbers divisible by 4, 6, 8, 10, 3, 5, 7, and 9 in separate lists for the range 0 to 151.
29. From a list containing ints, strings, and floats, make three separate lists to store them.
30. Write a Python program to append a list to the second list.
31. Write a Python program to find the third-largest number in a list.
32. Write a Python program to get the frequency of elements in a list.
33. Write a Python program to check whether a list contains a sublist.
34. Write a Python program to generate all sublists of a list.
35. Write a Python program to find common items from two lists.
36. How to sort a list in ascending and descending order without using the sort function?
37. Write a Python program to convert a list of multiple integers into a single integer.
  - **Example:** [11, 33, 50] → 113350