

Question 1: List Manipulation Basics

Given a list `my_list = [10, 20, 30, 40, 50, 60]`:

- Change the element at index 2 to 35.
- Add 70 to the end of the list.
- Insert 5 at the beginning of the list.
- Remove the element 40 from the list.
- Print the final list.

Question 2: Sum of Even Numbers

Write Python code that iterates through the following list `numbers = [12, 7, 23, 48, 15, 66, 9]`. Calculate and print the sum of all even numbers in the list.

Question 3: Manual List Reversal

Given a list `data = ['apple', 'banana', 'cherry', 'date', 'elderberry']`, create a new list that contains the elements of `data` in reverse order. You are not allowed to use `data.reverse()` or `data[::-1]`. You must achieve this using loops and basic list operations.

Question 4: Finding the Maximum Element

Without using the built-in `max()` function, write code to find and print the largest number in the list `values = [8, 2, 10, 5, 17, 3, 14]`.

Question 5: Count Occurrences

Given the list `items = ['red', 'blue', 'green', 'red', 'yellow', 'blue', 'red']`, write code to count how many times the string 'red' appears in the list and print the count. Do not use the `list.count()` method.

Question 6: Remove All Occurrences of an Element

Given a list `mixed_numbers = [1, 5, 2, 5, 3, 5, 4, 5]`, write code to remove all instances of the number 5 from the list. The final list should only contain `[1, 2, 3, 4]`. You must achieve this by iterating and creating a new list or modifying the existing one carefully.

Question 7: List Palindrome Check

Write code to determine if a given list is a palindrome (reads the same forwards and backwards). Print "Palindrome" if it is, and "Not a Palindrome" otherwise.

Test with:

- `list1 = [1, 2, 3, 2, 1]`
- `list2 = ['a', 'b', 'c', 'b', 'd']`

You are not allowed to use `::-1` for comparison.

Question 8: Merge and Sort Two Lists (Manual Sort)

Given two lists:

- `list_a = [3, 1, 4]`
- `list_b = [2, 5, 0]`

Combine these two lists into a single list and then sort the combined list in ascending order without using the `list.sort()` method or `sorted()` function. You'll need to implement a basic sorting algorithm (e.g., bubble sort logic) using loops.

Question 9: Flatten a Nested List

You are given a list that contains integers and other lists (only one level of nesting). For example: `nested_list = [1, [2, 3], 4, [5, 6, 7], 8]`.

Write code to create a new flat list containing all the integers from `nested_list`. The result should be `[1, 2, 3, 4, 5, 6, 7, 8]`.

Question 10: Find Common Elements

Given two lists, `list_p = [1, 2, 3, 4, 5]` and `list_q = [4, 5, 6, 7, 8]`, write code to find and print all elements that are common to both lists. The order of common elements does not matter. You are not allowed to use set operations.