Python List Iteration Assignment

Mustafa AbdulRazek

21 Aug 2024

Task 1: Even and Odd Number Categorization

Objective: Practice using loops, conditionals, and list operations.

Task

Write a Python program that asks the user to input 10 integers. The program should then separate the numbers into two lists: one for even numbers and one for odd numbers. Finally, print both lists.

Example Output

```
Input a number: 3
Input a number: 10
Input a number: 7
Input a number: 4
...
Even numbers: [10, 4, ...]
Odd numbers: [3, 7, ...]
```

Task 2: List Manipulation

Objective: Practice list operations such as append, insert, and delete.

Task

Create a Python program that starts with an empty list. Ask the user to input 5 items to add to the list using ‘append()‘. Then, ask the user for a position (index) and a new item to ‘insert()‘ into that position. Finally, ask the user for a position to ‘del‘ from the list. Print the final list.

Example Output

```
Add an item: apple
Add an item: banana
...
Insert 'orange' at index 2
Final list: ['apple', 'banana', 'orange', ...]
```

Task 3: Simple List Concatenation

Objective: Practice list concatenation.

Task

Create two lists of strings based on user input, then concatenate them into a single list and print the result.

Example Output

```
First list: ['cat', 'dog']
Second list: ['fish', 'bird']
Concatenated list: ['cat', 'dog', 'fish', 'bird']
```

Task 4: Find the Largest Number in a List

Objective: Practice using loops and conditional statements.

Task

Ask the user to input 10 numbers, then write a program to find and print the largest number in the list.

Example Output

```
Enter number 1: 34
Enter number 2: 67
...
The largest number is: 98
```

Task 5: Insert and Sort

Objective: Combine list operations with loops and conditionals.

Task

Create a list of 5 numbers input by the user. Ask the user for another number to insert into the list. Insert the number in the correct position to keep the list sorted in ascending order, then print the sorted list.

Example Output

```
Original list: [2, 4, 6, 8, 10]
Number to insert: 5
Sorted list: [2, 4, 5, 6, 8, 10]
```

Task 6: Count Positive, Negative, and Zero

Objective: Practice loops, conditionals, and list traversal.

Task

Write a program that takes 10 integers from the user and counts how many of them are positive, negative, or zero. Print the counts.

Example Output

```
Positive numbers: 4
Negative numbers: 3
Zeros: 3
```