PYTHON PROGRAMMING

UNIT 2

Python Program Flow Control Conditional blocks

By

Pragya rajvanshi

LEC-4(list)

Gateway classes

1. Write a Python program to remove duplicates from a list.

```
1  a = [1, 2, 2, 3, 4, 4, 5]
2  unique = list(set(a))
3  print("duplicates removed:", unique)
```

```
duplicates removed: [1, 2, 3, 4, 5]
```

2. Write a Python program to check if a list is empty or not.

```
1  a= []
2  if not a:
3      print("The list is empty.")
4  else:
5      print("The list is not empty.")
```

```
The list is empty.
```

3. Write a Python program to clone or copy a list

```
1  list = [1, 2, 3, 4, 5]
2  copied_list = list.copy()
3  print("Original list:", list)
4  print("Copied list:", copied_list)
```

```
Original list: [1, 2, 3, 4, 5]
Copied list: [1, 2, 3, 4, 5]
```

4.Write a Python program to find the list of words that are longer than n from a given list of words.

```
1  words = ["apple", "banana", "cherry", "date", "fig", "grape"]
2  n = 5
3  long_words = [x for x in words if len(x) > n]
4  print("Words longer than", n, "characters:", long_words)
```

```
input
Words longer than 5 characters: ['banana', 'cherry']
```

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5. Write a Python program to print a specified list after removing the 0th, 4th and 5th elements. Sample List : ['Red', 'Green', 'White', 'Black', 'Pink', 'Yellow'] Expected Output : ['Green', 'White', 'Black']

```
sample_list = ['Red', 'Green', 'White', 'Black', 'Pink', 'Yellow']
result = [sample_list[i] for i in range(len(sample_list)) if i not in (0, 4, 5)]
print("Expected Output:", result)
```

```
Expected Output: ['Green', 'White', 'Black']
```

6. Write a Python program to print the numbers of a specified list after removing even numbers from it

```
numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
odd_numbers = [num for num in numbers if num % 2 != 0]
print("List after removing even numbers:", odd_numbers)
```

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7. Write a Python program to shuffle and print a specified list

```
1  import random
2  sample_list = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
3  random.shuffle(sample_list)
4  print("Shuffled list:", sample_list)
```

```
Shuffled list: [8, 5, 7, 9, 1, 6, 10, 3, 2, 4]
```

8. Whose number square is less than equal to 30 range is taken between 1 to 30

```
square_numbers = [i**2 for i in range(1, 31) if i**2 <= 30]
print(square_numbers)
first_five = square_numbers[:5]
last_five = square_numbers[-5:]
print("First 5 square numbers:", first_five)
print("Last 5 square numbers:", last_five)
```

```
[1, 4, 9, 16, 25]
First 5 square numbers: [1, 4, 9, 16, 25]
Last 5 square numbers: [1, 4, 9, 16, 25]
```

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9. Write a Python program to check if each number is prime in a given list of numbers. Return True if all numbers are prime otherwise False.

```
numbers = [2, 3, 5, 7, 11]
all_prime = True
for num in numbers:
    if num < 2:
        all_prime = False
        break
    for i in range(2, num):
        if num % i == 0:
            all_prime = False
            break
print("All numbers are prime:", all_prime)
```

```
All numbers are prime: True
```

10.Write a Python program to calculate the difference between the two lists.

```
list1 = [1, 2, 3, 4, 5]
list2 = [4, 5, 6, 7, 8]
difference = [item for item in list1 if item not in list2]
print("Difference between the two lists:", difference)
```

```
Difference between the two lists: [1, 2, 3]
```

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11. Write a Python program to access the index of a list.

```
nums = [5, 15, 35, 8, 98]
for num_index, num_val in enumerate(nums):
    print(num_index, num_val)
```

12. Write a Python program to convert a list of characters into a string.

```
char_list = ['H', 'e', ' ', 'W', 'o']
result_string = ''.join(char_list)
print("Converted string:", result_string)
```

```
Converted string: He Wo
```

13. Write a Python program to find the index of an item in a specified list.

```
sample_list = ['apple', 'banana', 'cherry', 'date', 'fig']
item_to_find = 'cherry'
if item_to_find in sample_list:
    index = sample_list.index(item_to_find)
    print(f"The index of '{item_to_find}' is: {index}")
else:
    print(f"'{item_to_find}' is not in the list.")
```

```
The index of 'cherry' is: 2
```

14. Write a Python program to append a list to the second list.

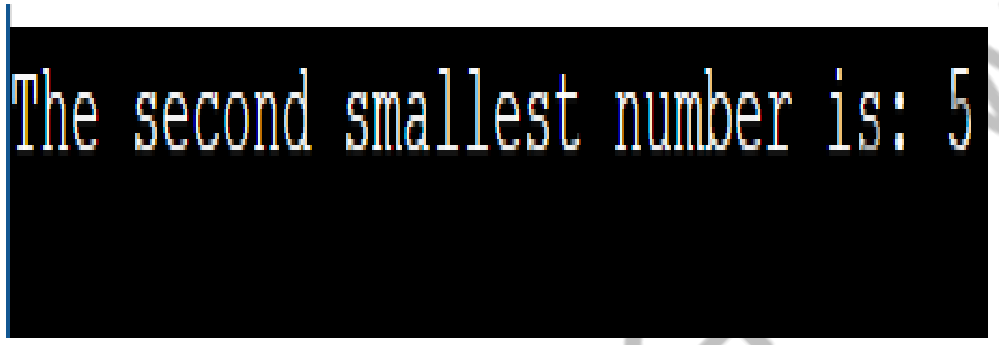
```
list1 = [1, 2, 3]
list2 = [4, 5, 6]
list2.extend(list1)
print("Modified second list:", list2)
```

```
Modified second list: [4, 5, 6, 1, 2, 3]
```

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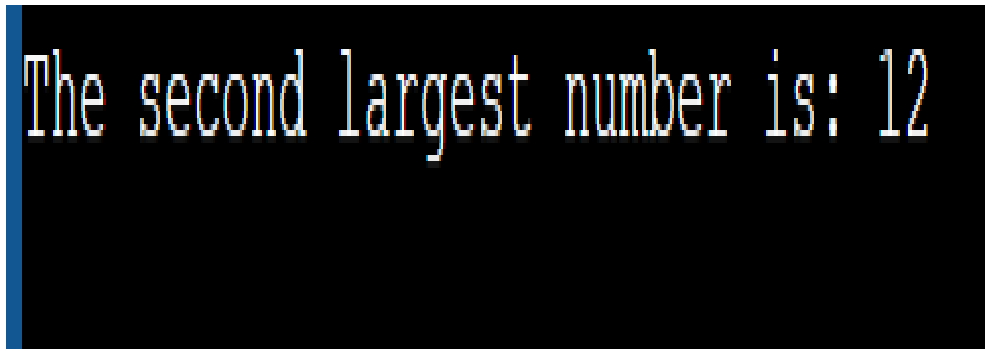
15. Python program to find the second smallest number in a list:

```
numbers = [5, 15, 3, 8, 9, 12]
unique_numbers = list(set(numbers))
unique_numbers.sort()
if len(unique_numbers) >= 2:
    second_smallest = unique_numbers[1]
    print("The second smallest number is:", second_smallest)
else:
    print("There is no second smallest number.")
```



16 . Python program to find the second largest number in a list:

```
numbers = [5, 15, 3, 8, 9, 12]
unique_numbers = list(set(numbers))
unique_numbers.sort(reverse=True)
if len(unique_numbers) >= 2:
    second_largest = unique_numbers[1]
    print("The second largest number is:", second_largest)
else:
    print("There is no second largest number.")
```



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17. Write a Python program to get unique values from a list.

```
numbers = [1, 2, 3, 2, 4, 5, 1, 6, 4]
unique_values = list(set(numbers))
print("Unique values in the list:", unique_values)
```

```
The second largest number is: 12
```

18.Write a Python program to get the frequency of elements in a list

```
elements = ['apple', 'banana', 'apple', 'orange', 'banana', 'apple']
frequency = {}
for item in elements:
    if item in frequency:
        frequency[item] += 1
    else:
        frequency[item] = 1
print("Frequency of elements in the list:")
for item, count in frequency.items():
    print(f"{item}: {count}")
```

```
Frequency of elements in the list:
apple: 3
banana: 2
orange: 1
```

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