PYTHON PROGRAMMING

UNIT 2

Python Program Flow Control Conditional Blocks

By

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LEC-5(list)

Gateway classes

1. Write a Python program to count the number of elements in a list within a specified range.

```
numbers = [5, 15, 3, 8, 9, 12, 20, 25, 30]
lower_bound = 10
upper_bound = 15
count_in_range = sum(1 for num in numbers if lower_bound <= num <= upper_bound)
print(f"Number of elements in the list within the range {lower_bound} to {upper_bound}: {count_in_range}")
```

```
Number of elements in the list within the range 10 to 15: 2
```

2. Write a Python program to check whether a list contains a sub list.

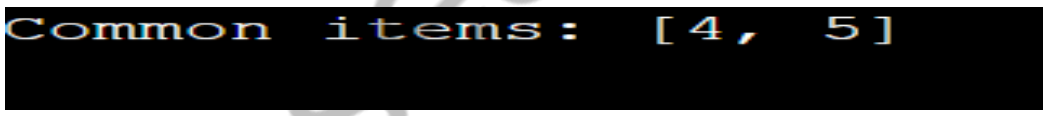
```
main_list = [1,4, 5, 6, 7, 8, 9]
sub_list = [4, 5, 6]
found = False
for i in range(len(main_list) - len(sub_list) + 1):
    if main_list[i:i + len(sub_list)] == sub_list:
        found = True
        break
if found:
    print("The main list contains the sublist.")
else:
    print("The main list does not contain the sublist.")
```

```
The main list contains the sublist.
```

Gateway Classes

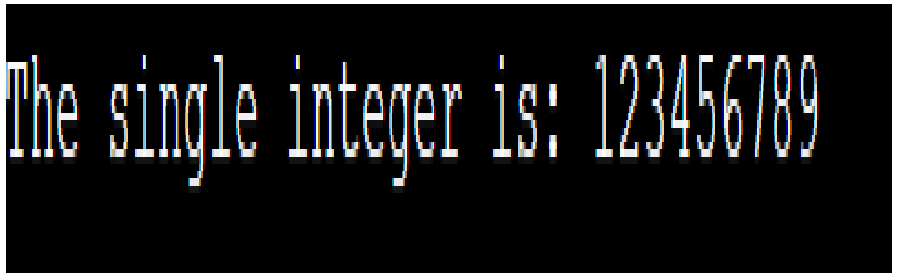
3. Write a Python program to find common items in two lists

```
list1 = [1, 2, 3, 4, 5]
list2 = [4, 5, 6, 7, 8]
common_items = []
for item in list1:
    if item in list2:
        common_items.append(item)
print("Common items:", common_items)
```



4. Write a Python program to convert a list of multiple integers into a single integer.

```
list1 = [1, 23, 456, 7, 89]
result_string = ""
for num in list1:
    result_string += str(num)
single_integer = int(result_string)
print("The single integer is:", single_integer)
```



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5. Write a Python program to split a list based on the first character of a word.

```
words = ['apple', 'banana', 'apricot', 'blueberry', 'cherry', 'date', 'fig', 'grape']
split_dict = {}
for word in words:
    first_char = word[0]
    if first_char not in split_dict:
        split_dict[first_char] = []
    split_dict[first_char].append(word)
for char, word_list in split_dict.items():
    print(f"Words starting with '{char}': {word_list}")
```

```
Words starting with 'a': ['apple', 'apricot']
Words starting with 'b': ['banana', 'blueberry']
Words starting with 'c': ['cherry']
Words starting with 'd': ['date']
Words starting with 'f': ['fig']
Words starting with 'g': ['grape']
```

6. Write a Python program to create multiple lists.

```
list1 = [1, 2, 3]
list2 = ['a', 'b', 'c']
list3 = [True, False, True]
list4 = [3.14, 2.71, 1.41]
multiple_lists = [list1, list2, list3, list4]
print("List 1:", list1)
print("List 2:", list2)
print("List 3:", list3)
print("List 4:", list4)
print("Multiple Lists:", multiple_lists)
```

```
List 1: [1, 2, 3]
List 2: ['a', 'b', 'c']
List 3: [True, False, True]
List 4: [3.14, 2.71, 1.41]
Multiple Lists: [[1, 2, 3], ['a', 'b', 'c'], [True, False, True], [3.14, 2.71, 1.41]]
```

Gateway classes

7. Write a Python program to split a list into different variables.

```
my_list = [10, 20, 30, 40, 50]
var1, var2, var3, var4, var5 = my_list
print("Variable 1:", var1)
print("Variable 2:", var2)
print("Variable 3:", var3)
print("Variable 4:", var4)
print("Variable 5:", var5)
```

```
Variable 1: 10
Variable 2: 20
Variable 3: 30
Variable 4: 40
Variable 5: 50
```

8. Write a Python program to insert an element before each element of a list.

```
original_list = [10, 20, 30, 40, 50]
element_to_insert = 'X'
modified_list = []
for item in original_list:
    modified_list.append(element_to_insert)
    modified_list.append(item)
print("Modified List:", modified_list)
```

```
Modified List: ['X', 10, 'X', 20, 'X', 30, 'X', 40, 'X', 50]
```

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9. Write a Python program to split a list every Nth element.

Sample list: ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n']

Expected Output: [['a', 'd', 'g', 'j', 'm'], ['b', 'e', 'h', 'k', 'n'], ['c', 'f', 'i', 'l']]

```
sample_list = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n']
N = 3
split_lists = []
for i in range(N):
    sublist = sample_list[i::N]
    split_lists.append(sublist)
print("Resulting Split Lists:")
print(split_lists)
```

```
Resulting Split Lists:
[['a', 'd', 'g', 'j', 'm'], ['b', 'e', 'h', 'k', 'n'], ['c', 'f', 'i', 'l']]
```

Gateway classes

10. Write a Python program to concatenate elements of a list.

```
string_list = ['Hello', 'World', 'from']
concatenated_string = ' '.join(string_list)
print("Concatenated String:", concatenated_string)
```

```
Concatenated String: Hello World from
```

11.. Write a Python program to convert a string to a list.

```
input_string = "Hello, World!"
result = list(input_string)
print(result)
```

```
['H', 'e', 'l', 'l', 'o', ',', ' ', 'W', 'o', 'r', 'l', 'd', '!']
```

12.. Write a Python program to check if all items in a given list of strings are equal to a given string.

```
string_list = ["apple", "apple", "apple"]
target_string = "apple"
all_equal = all(item == target_string for item in string_list)
print("All items are equal to the target string:", all_equal)
```

```
All items are equal to the target string: True
```

Gateway Classes

THANK YOU

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