Python Basic Programming Assignment 10

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1. Write a Python program to find sum of elements in list?

```
array1 = [10,20,30]
print(sum(array1))
```

```
60
```

2. Write a Python program to Multiply all numbers in the list?

```
mul = 1
for i in range(len(array1)):
  mul = mul * array1[i]
print(mul)
```

```
6000
```

3. Write a Python program to find smallest number in a list?

```
print(min(array1))
```

```
10
```

4. Write a Python program to find largest number in a list?

```
print(max(array1))
```

```
30
```

5. Write a Python program to find second largest number in a list?

```
def second_largest(numbers):
    # Sort the list in descending order
    sorted_numbers = sorted(numbers, reverse=True)
    # Return the second element in the sorted list
    return sorted_numbers[1]
print(second_largest([1, 2, 3, 4, 5]))  # 4
print(second_largest([5, 4, 3, 2, 1]))  # 4
print(second_largest([1, 5, 2, 4, 3]))  # 4
print(second_largest([5, 1, 3, 4, 2]))  # 4
print(second_largest([1, 2, 2, 3, 3]))  # 2
```

```
4
4
4
4
3
```

6. Write a Python program to find N largest elements from a list?

```
def n_largest(numbers, n):
    # Sort the list in descending order
    sorted_numbers = sorted(numbers, reverse=True)
    # Return the first n elements of the sorted list
    return sorted_numbers[:n]
print(n_largest([1, 2, 3, 4, 5], 2))  # [5, 4]
print(n_largest([5, 4, 3, 2, 1], 3))  # [5, 4, 3]
print(n_largest([1, 5, 2, 4, 3], 4))  # [5, 4, 3, 2]
print(n_largest([5, 1, 3, 4, 2], 1))  # [5]
print(n_largest([1, 2, 2, 3, 3], 3))  # [3, 3, 2]
```

```
[5, 4]
[5, 4, 3]
[5, 4, 3, 2]
[5]
[3, 3, 2]
```

7. Write a Python program to print even numbers in a list?

```
array2 = [10,11,12,13,14,15,16]
evenelements = []
for i in range(0, len(array2)):
  if array2[i] % 2 == 0:
    evenelements.append(array2[i])
print(evenelements)
```

```
[10, 12, 14, 16]
```

8. Write a Python program to print odd numbers in a List?

```
array2 = [10,11,12,13,14,15,16]
oddelements = []
for i in range(0, len(array2)):
  if array2[i] % 2 != 0:
    oddelements.append(array2[i])
print(oddelements)
```

```
[11, 13, 15]
```

9. Write a Python program to Remove empty List from List?

```
def remove_empty_lists(lst):
    # Use a list comprehension with a conditional statement to remove empty lists
    return [elem for elem in lst if elem != []]

# Test the function
print(remove_empty_lists([[1, 2, 3], [], [4, 5, 6], [], [], [7, 8, 9]]))  # [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
print(remove_empty_lists([[], [1, 2, 3], [], [4, 5, 6], [7, 8, 9]]))  # [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
print(remove_empty_lists([[1, 2, 3], [4, 5, 6], [7, 8, 9]]))  # [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
print(remove_empty_lists([[], [], []]))  # []
print(remove_empty_lists([]))  # []
```

```
[[1, 2, 3], [4, 5, 6], [7, 8, 9]]
[[1, 2, 3], [4, 5, 6], [7, 8, 9]]
[[1, 2, 3], [4, 5, 6], [7, 8, 9]]
[]
[]
```

10. Write a Python program to Cloning or Copying a list?

```
def clone_list(lst):
    # Create a new list and copy the elements from the original list
    new_list = list(lst)
    return new_list

# Test the function
original_list = [1, 2, 3, 4, 5]
cloned_list = clone_list(original_list)

# Modify the original list
original_list[0] = 10

# Print the original and cloned lists
print(original_list)  # [10, 2, 3, 4, 5]
print(cloned_list)   # [1, 2, 3, 4, 5]
```

```
[10, 2, 3, 4, 5]
[1, 2, 3, 4, 5]
```

11. Write a Python program to Count occurrences of an element in a list?

```
def count_occurrences(lst, elem):
    # Use the count method of the list to count the occurrences of the element
    return lst.count(elem)

# Test the function
print(count_occurrences([1, 2, 3, 1, 2, 3, 1, 2, 3], 1))  # 3
print(count_occurrences([1, 2, 3, 1, 2, 3, 1, 2, 3], 2))  # 3
print(count_occurrences([1, 2, 3, 1, 2, 3, 1, 2, 3], 3))  # 3
print(count_occurrences([1, 2, 3, 1, 2, 3, 1, 2, 3], 4))  # 0
```

```
3
3
3
0
```