Python Activity 2

1.

```python
from itertools import combinations

def sub_lists(my_list):
    subs = []
    for i in range(0, len(my_list)+1):
        temp = [list(x) for x in combinations(my_list, i)]
        if len(temp)>0:
            subs.extend(temp)
    return subs


l2 = [1, 2, 3]
print(l2)
print("Sublists of the said list:")
print(sub_lists(l2))
```

output:

[1},[2],[3],[1,2],[2,3],[1,2,3]

2.

```python
def count_range_in_list(li, min, max):
    ctr = 0
    for x in li:
        if min <= x <= max:
            ctr += 1
    return ctr
```

```
list1 = [10,20,30,40,40,40,70,80,99]

print(count_range_in_list(list1, 40, 100))


list2 = ['a','b','c','d','e','f']

print(count_range_in_list(list2, 'a', 'e'))

output:

6

5



3.

def is_sorted(list_of_numbers):


    if sorted(list_of_numbers) == list_of_numbers:


        return True


    #Ok, not sorted ascending, lets check descending


    elif sorted(list_of_numbers, key=int, reverse=True) == list_of_numbers:


        return True


    #At this point we know it is not sorted


    return False
```

```python
def main():

    list_of_numbers = []

    #We use this boolean to indicate that we are not done

    done = False

    while not done:

        number = int(input("Enter a number. Exit with 0: "))

        if number != 0:

            list_of_numbers.append(number)

        else:

            done = True

    print(is_sorted(list_of_numbers))
```

```python
if _name_ == '_main_':

    main()
```

output:

Enter a number. Exit with 09

Enter a number. Exit with 04

Enter a number. Exit with 00

4.

```python
n=int(input("Enter an integer:"))
print("The divisors of the number are:")
for i in range(1,n+1):
    if(n%i==0):
        print(i)
```

output:

enter an integer:6

The divisors of the number are 1 2 3 6

5.

```python
def perfect_number(n):
    sum = 0
    for x in range(1, n):
```

```python
        if n % x == 0:

            sum += x

            return sum == n

        print(perfect_number(6))
```

output:true

6.

```python
def multiply_list(items):

    tot = 1

    for x in items:

        tot *= x

        return tot

        print(multiply_list([1,2,-8]))
```

output:

-16

7.

```python
a = [10,20,30,20,10,50,60,40,80,50,40]


dup_items = set()

uniq_items = []

for x in a:

    if x not in dup_items:

        uniq_items.append(x)

        dup_items.add(x)

print(dup_items)
```

output:

{40,10,80,50,20,60,30}

8.

```
def common_data(list1, list2):
    result = False
    for x in list1:
        for y in list2:
            if x == y:
                result = True
                return result
                print(common_data([1,2,3,4,5], [5,6,7,8,9]))
                print(common_data([1,2,3,4,5], [6,7,8,9]))
```

output:

true