

*#using the return ststatement*

```
def cube(num):  
    return num **3  
num=int(input("Enter the number"))  
result=cube(num)  
print(" the cube is:",result)
```

Enter the number 23

the cube is: 12167

*#using Break statement*

```
while True:  
    num=int(input("Enter the number"))  
    if num <0:  
        print("negative number enter Stop excecution")  
        break  
    print(" you entered:",num)
```

Enter the number 23

you enntered: 23

Enter the number -3

negative number enter Stop excecution

*#using continue loop*

```
for num in range(1,21):  
    if num % 2 != 0:  
        continue  
    print(num)
```

2  
4  
6  
8  
10  
12  
14  
16  
18  
20

*# using Break and continue loop*

```
for num in range(1,21):  
    if num > 15:  
        break  
    if num % 2 != 0:  
        continue
```

```
print(num)
```

16

```
#local scope in function
```

```
x = 20
```

```
def my_function():  
    print("Inside the function, x =", x)  
my_function()  
print("Outside the function, x =", x)
```

```
Inside the function, x = 20
```

```
Outside the function, x = 20
```

```
#modify the global variable inside a function
```

```
counter = 0
```

```
def increment_counter():  
    global counter  
    counter += 1  
    print("Updated counter value:", counter)  
increment_counter()  
increment_counter()  
increment_counter()
```

```
Updated counter value: 1
```

```
Updated counter value: 2
```

```
Updated counter value: 3
```

```
#demonstrating local and global scope
```

```
counter = 0
```

```
def increment_counter():  
    global counter  
    counter += 1  
    print("Updated counter value:", counter)  
increment_counter()  
increment_counter()  
increment_counter()  
increment_counter()
```

```
Updated counter value: 1
```

```
Updated counter value: 2
```

```
Updated counter value: 3
```

```
Updated counter value: 4
```

```
#working with tuples in python
```

```
fruits = ("apple", "banana", "cherry")
```

```
fruits_list = list(fruits)
```

```
fruits_list[1] = "orange"
```

```
fruits = tuple(fruits_list)
```

```
print("Modified tuple:", fruits)
```

```

print("Second element:", fruits[1])
fruits_list = list(fruits)
fruits_list[1] = "orange"
fruits = tuple(fruits_list)
print("Modified tuple:", fruits)

Modified tuple: ('apple', 'orange', 'cherry')
Second element: orange
Modified tuple: ('apple', 'orange', 'cherry')

#working with sets
set1 = {1, 2, 3, 4, 5}
set2 = {4, 5, 6, 7, 8}
# Union
union_set = set1.union(set2)
print("Union of set1 and set2:", union_set)
# Intersection
intersection_set = set1.intersection(set2)
print("Intersection of set1 and set2:", intersection_set)
# Difference
difference_set1 = set1.difference(set2)
print("Difference (set1 - set2):", difference_set1)
difference_set2 = set2.difference(set1)
print("Difference (set2 - set1):", difference_set2)
set1.add(9)
print("Set1 after adding 9:", set1)
set2.remove(5)
print("Set2 after removing 5:", set2)
num = 3
if num in set1:
    print(f"{num} is present in set1.")
else:
    print(f"{num} is not present in set1.")

Union of set1 and set2: {1, 2, 3, 4, 5, 6, 7, 8}
Intersection of set1 and set2: {4, 5}
Difference (set1 - set2): {1, 2, 3}
Difference (set2 - set1): {8, 6, 7}
Set1 after adding 9: {1, 2, 3, 4, 5, 9}
Set2 after removing 5: {4, 6, 7, 8}
3 is present in set1.

#tuple and set operation
tuple1 = (1, 2, 3, 4, 5)
tuple2 = ("apple", "banana", "cherry")
print("Tuple1:", tuple1)
print("Tuple2:", tuple2)
print("First element of tuple1:", tuple1[0])
print("Last element of tuple2:", tuple2[-1])
print("Slicing tuple1 from index 1 to 3:", tuple1[1:4])

```

```

tuple3 = tuple1 + tuple2
print("Concatenated tuple:", tuple3)
tuple4 = tuple1 * 2
print("Repeated tuple:", tuple4)
tuple5 = (1, 2, 2, 3, 4, 2)
print("Count of 2 in tuple5:", tuple5.count(2))
print("Index of 4 in tuple5:", tuple5.index(4))
set1 = {1, 2, 3, 4, 5}
set2 = {4, 5, 6, 7, 8}
print("Set1:", set1)
print("Set2:", set2)
union_set = set1.union(set2)
print("Union of set1 and set2:", union_set)
intersection_set = set1.intersection(set2)
print("Intersection of set1 and set2:", intersection_set)
difference_set1 = set1.difference(set2)
print("Difference (set1 - set2):", difference_set1)
difference_set2 = set2.difference(set1)
print("Difference (set2 - set1):", difference_set2)
set1.add(9)
print("Set1 after adding 9:", set1)
set2.remove(5)
print("Set2 after removing 5:", set2)
num = 3
if num in set1:
    print(f"{num} is present in set1.")
else:
    print(f"{num} is not present in set1.")

```

```

Tuple1: (1, 2, 3, 4, 5)
Tuple2: ('apple', 'banana', 'cherry')
First element of tuple1: 1
Last element of tuple2: cherry
Slicing tuple1 from index 1 to 3: (2, 3, 4)
Concatenated tuple: (1, 2, 3, 4, 5, 'apple', 'banana', 'cherry')
Repeated tuple: (1, 2, 3, 4, 5, 1, 2, 3, 4, 5)
Count of 2 in tuple5: 3
Index of 4 in tuple5: 4
Set1: {1, 2, 3, 4, 5}
Set2: {4, 5, 6, 7, 8}
Union of set1 and set2: {1, 2, 3, 4, 5, 6, 7, 8}
Intersection of set1 and set2: {4, 5}
Difference (set1 - set2): {1, 2, 3}
Difference (set2 - set1): {6, 7, 8}
Set1 after adding 9: {1, 2, 3, 4, 5, 9}
Set2 after removing 5: {4, 6, 7, 8}
3 is present in set1.

```

```

#list to set conversion and basic set operaton
my_list = [1, 2, 3, 4, 5, 3, 2, 1]
my_set = set(my_list)
print("Set after conversion:", my_set)
my_set.add(6)
print("Set after adding 6:", my_set)
my_set.remove(3)
print("Set after removing 3:", my_set)
set2 = {4, 5, 6, 7, 8}
union_set = my_set.union(set2)
print("Union of sets:", union_set)
intersection_set = my_set.intersection(set2)
print("Intersection of sets:", intersection_set)
difference_set = my_set.difference(set2)
print("Difference (my_set - set2):", difference_set)
num = 5
if num in my_set:
    print(f"{num} is present in the set.")
else:
    print(f"{num} is not present in the set.")

```

```

Set after conversion: {1, 2, 3, 4, 5}
Set after adding 6: {1, 2, 3, 4, 5, 6}
Set after removing 3: {1, 2, 4, 5, 6}
Union of sets: {1, 2, 4, 5, 6, 7, 8}
Intersection of sets: {4, 5, 6}
Difference (my_set - set2): {1, 2}
5 is present in the set.

```