In [1]:
```
#Ayush Sharma 209303312
#1.1 Write a program in python to declare a variable
num1 = 420
num2 = 69.5
name = "Ayush"
print(num1,num2)
print(name)
```

```
420 69.5
Ayush
```

In [2]:
```
#Ayush Sharma 209303312
#1.2 Program to get input from User Int and string both
user_name = input("Enter your name: ")
age = int(input("Enter your age:"))
print(f"{user_name} is {age} years old.")
```

```
Enter your name: Ayush
Enter your age:21
Ayush is 21 years old.
```

In [5]:
```
#Ayush Sharma 209303312
#1.3 Program to demonstrate String datatype in Python
str1 = input("Enter a string: ")
str2 = input("Enter another string: ")
times = int(input("Enter a number between 1 and 5: "))
print(f"Concatenation : {str1+str2}")
print(f"Slicing: {str1[:3]}")
print(f"Indexing: {str2[5]}")
print(f"Multiplication: {times*str1}")
```

```
Enter a string: Ayush
Enter another string: Sharma
Enter a number between 1 and 5: 3
Concatenation : AyushSharma
Slicing: Ayu
Indexing: a
Multiplication: AyushAyushAyush
```

In [6]:
```
#Ayush Sharma 209303312
#1.4 Program to demonstrate Number datatype in Python
a = 5
print(f"Type of a: {type(a)}")
b = 40.5
print(f"Type of b: {type(b)}")
c = 1+3j
print(f"Type of c: {type(c)}")
```

```
Type of a: <class 'int'>
Type of b: <class 'float'>
Type of c: <class 'complex'>
```

In [8]:
```
#Ayush Sharma 209303312
#1.5 Program to demonstrate List datatype in Python
l1 = ["Ayush","Sharma", 21, 209303312]
print(f"List: {l1}")
```

```
print(f"List Slicing: {l1[2:]}")
print(f"List concatenation: {l1+l1}")
print(f"List repetition: {l1*3}")
```

```
List: ['Ayush', 'Sharma', 21, 209303312]
List Slicing: [21, 209303312]
List concatenation: ['Ayush', 'Sharma', 21, 209303312, 'Ayush', 'Sharma', 21, 2093
03312]
List repetition: ['Ayush', 'Sharma', 21, 209303312, 'Ayush', 'Sharma', 21, 2093033
12, 'Ayush', 'Sharma', 21, 209303312]
```

In [10]:
```
#Ayush Sharma 209303312
#1.6 Program to demonstrate Tuples datatype in Python
tup = ("Ayush","Sharma", 21, 209303312)
print(f"Type: {type(tup)}")
print(f"Tuple: {tup}")
print(f"Tuple Slicing: {tup[:2]}")
print(f"Tuple concatenation: {tup+tup}")
print(f"Tuple repetition: {3*tup}")
```

```
Type: <class 'tuple'>
Tuple: ('Ayush', 'Sharma', 21, 209303312)
Tuple Slicing: ('Ayush', 'Sharma')
Tuple concatenation: ('Ayush', 'Sharma', 21, 209303312, 'Ayush', 'Sharma', 21, 209
303312)
Tuple repetition: ('Ayush', 'Sharma', 21, 209303312, 'Ayush', 'Sharma', 21, 209303
312, 'Ayush', 'Sharma', 21, 209303312)
```

In [12]:
```
#Ayush Sharma 209303312
#1.7 Program to demonstrate Dictionary datatype in Python
d = {1:'Jaipur', 2:'Ajmer', 3:'Jodhpur', 4:'Udaipur'}
print(f"Dictionary {d}")
print(f"First name is {d[1]}")
print(f"Dictionary Keys:  {d.keys()}")
print(f"Dictionary Values:  {d.values()}")
```

```
Dictionary {1: 'Jaipur', 2: 'Ajmer', 3: 'Jodhpur', 4: 'Udaipur'}
First name is Jaipur
Dictionary Keys:  dict_keys([1, 2, 3, 4])
Dictionary Values:  dict_values(['Jaipur', 'Ajmer', 'Jodhpur', 'Udaipur'])
```

In [15]:
```
#Ayush Sharma 209303312
#1.8 Program to demonstrate Set datatype in Python
set1 = set()
set2 = {"Ayush", 19, 21,"Sharma"}
print(f"Set 2 : {set2}")
set1.add(5)
print(f"Set 1 : {set1}")
set2.remove(21)
print(f"Set 2 : {set2}")
```

```
Set 2 : {'Sharma', 19, 21, 'Ayush'}
Set 1 : {5}
Set 2 : {'Sharma', 19, 'Ayush'}
```

In [16]:
```
#Ayush Sharma 209303312
#1.9 Program to demonstrate Boolean datatype in Python
```

```
print(f"True: {type(True)}")
print(f"False: {type(False)}")
```

```
True: <class 'bool'>
False: <class 'bool'>
```

In [17]:
```
#Ayush Sharma 209303312
#1.10 Program to demonstrate Arithmetic Operator in python
a = int(input("Enter a number: "))
b = int(input("Enter another number: "))
print(f"Addition: {a+b}")
print(f"Subtraction: {a-b}")
print(f"Multiplication: {a*b}")
print(f"Division: {a/b}")
print(f"Floor Division: {a//b}")
print(f"Modulus: {a%b}")
print(f"Power: {a**b}")
```

```
Enter a number: 10
Enter another number: 6
Addition: 16
Subtraction: 4
Multiplication: 60
Division: 1.6666666666666667
Floor Division: 1
Modulus: 4
Power: 1000000
```

In [18]:
```
#Ayush Sharma 209303312
#1.11 Program to demonstrate comparison operator in python
x = 10
y = 12
print('x > y is',x>y)
print('x < y is',x<y)
print('x == y is',x==y)
print('x != y is',x!=y)
print('x >= y is',x>=y)
print('x <= y is',x<=y)
```

```
x > y is False
x < y is True
x == y is False
x != y is True
x >= y is False
x <= y is True
```

In [20]:
```
#Ayush Sharma 209303312
#1.12 Program to demonstrate Assignment operator in python
a = 5
b = a  #normal assignment
print(b)
b += a  #add and assign
print(b)
b -= a  #subtract and assign
print(b)
b *= a  #multiply and assign
print(b)
```

```
b <<= a  #left shift and assign
print(b)
```

```
5
10
5
25
800
```

In [22]:
```
#Ayush Sharma 209303312
#1.13  Program to demonstrate Logical Operator in python
a = True
b = False
print(f"AND: {a and b}")
print(f"OR : {a or b}")
print(f"NOT: {not a}")
```

```
AND: False
OR : True
NOT: False
```

In [25]:
```
#Ayush Sharma 209303312
#1.14 Program to demonstrate Bitwise Operator in python
a = 14
b = 7
print(f"Bitwise AND: {a & b}")
print(f"Bitwise OR: {a | b}")
print(f"Bitwise NOT: {~a}")
print(f"Bitwise XOR: {a^b}")
print(f"Bitwise Left Shift {a<<2}")
print(f"Bitwsie Right Shift {a>>2}")
```

```
Bitwise AND: 6
Bitwise OR: 15
Bitwise NOT: -15
Bitwise XOR: 9
Bitwise Left Shift 56
Bitwsie Right Shift 3
```

In [28]:
```
#Ayush Sharma 209303312
#1.15 Program to demonstrate Membership Operator in python
x = 25
y = 20
l1 = [10, 20, 30, 40, 50]
if x not in l1:
    print("x is NOT present in the given list")
else:
    print("x is present in the given list")
if y in l1:
    print("y is present in the given list")
else:
    print("y is NOT present in the given list")
```

```
x is NOT present in the given list
y is present in the given list
```

In [32]:
```
#Ayush Sharma 209303312
#1.16 Program to demonstrate decision making using if else in python
```

```
num = int(input("Enter a number: "))
if num > 0:
    print("Input number is a positive number")
elif num == 0:
    print("Input number is zero")
else:
    print("Input number is a negative number")
```

```
Enter a number: -10
Input number is a negative number
```

In [33]:
```
#Ayush Sharma 209303312
#1.17  Program to demonstrate for loop in python
numbers = [6, 5, 3, 8, 4, 2, 5, 4, 11]
add = 0
for i in numbers:
    add += i
print(f"The sum is {add}")
```

```
The sum is 48
```

In [34]:
```
#Ayush Sharma 209303312
#1.18 Program to demonstrate range function in python
print(range(7))
print(list(range(7)))
print(list(range(2, 11)))
print(list(range(10, 0, -1)))
```

```
range(0, 7)
[0, 1, 2, 3, 4, 5, 6]
[2, 3, 4, 5, 6, 7, 8, 9, 10]
[10, 9, 8, 7, 6, 5, 4, 3, 2, 1]
```

In [35]:
```
#Ayush Sharma 209303312
#1.19 Program to demonstrate use of range function with for loop
subjects = ["AI/ML","Wireless Communications", "Automata Theory"]
for i in range(len(subjects)):
    print(f"I am good in {subjects[i]}")
```

```
I am good in AI/ML
I am good in Wireless Communications
I am good in Automata Theory
```

In [39]:
```
#Ayush Sharma 209303312
#1.20 Program to demonstrate while loop in python
n = int(input("Enter a number:"))
i = 1
add = 0
while i <= n:
    add += i
    i += 1
print(f"Sum of first {n} numbers is {add}")
```

```
Enter a number:69
Sum of first 69 numbers is 2415
```

In [40]:
```
#Ayush Sharma 209303312
#1.20 Program to demonstrate use of function in python
```

```python
def add(x,y):
    return x+y
n = 10
m = 5
print(f"Sum = {add(n,m)}")
```

```
Sum = 15
```

In [ ]: