Day 3: Operators in Python

Topics Covered:

- *Introduction to Operators*
- *Arithmetic Operators*
- *Comparison Operators*
- *Logical Operators*
- *Assignment Operators*
- *Membership Operators*
- *Identity Operators*

1. Introduction to Operators:

In Python, operators are special symbols or keywords used to perform operations on operands. They can perform arithmetic, comparison, logical operations, and more.

Example of operators:

```
x = 10
y = 5
print(x + y)  # Output: 15
```

2. Arithmetic Operators:

Arithmetic operators are used to perform mathematical operations such as addition, subtraction, multiplication, etc.

Addition (+):

```
a = 10
b = 5
print(a + b)  # Output: 15
```

Subtraction (-):

```
a = 10
b = 5
print(a - b)  # Output: 5
```

Multiplication (*):

```
a = 10
b = 5
print(a * b)  # Output: 50
```

Division (/):

```
a = 10
b = 5
print(a / b)  # Output: 2.0
```

Modulus (%):

```
a = 10
b = 5
print(a % b)  # Output: 0
```

Exponentiation (**):

```
a = 2
b = 3
print(a ** b)  # Output: 8
```

Floor Division (//):

```
a = 10
b = 3
print(a // b)  # Output: 3
```

3. Comparison Operators:

Comparison operators are used to compare two values and return a Boolean result (True or False).

Equal to (==):

```
a = 10
b = 5
print(a == b)  # Output: False
```

Not Equal to (!=):

```
a = 10
b = 5
print(a != b)  # Output: True
```

Greater than (>):

```
a = 10
b = 5
print(a > b)  # Output: True
```

Less than (<):

```
a = 10
b = 5
print(a < b)  # Output: False
```

Greater than or Equal to (>=):

```
a = 10
b = 5
print(a >= b)  # Output: True
```

Less than or Equal to (<=):

```
a = 10
b = 5
print(a <= b)  # Output: False
```

4. Logical Operators:

Logical operators are used to combine conditional statements and return a Boolean result.

AND (and):

```
a = 10
b = 5
print(a > 5 and b < 10)  # Output: True
```

OR (or):

```
a = 10
b = 5
print(a > 5 or b > 10)  # Output: True
```

NOT (not):

```
a = 10
b = 5
print(not(a > 5))  # Output: False
```

5. Assignment Operators:

Assignment operators are used to assign values to variables.

Assignment (=):

```
a = 10
print(a)  # Output: 10
```

Add and Assign (+=):

```
a = 10
a += 5
print(a)  # Output: 15
```

Subtract and Assign (-=):

```
a = 10
a -= 5
print(a)  # Output: 5
```

6. Membership Operators:

Membership operators are used to check if a value exists in a sequence (like a list, tuple, etc.).

in:

```
a = [1, 2, 3, 4, 5]
print(3 in a)  # Output: True
```

not in:

```
a = [1, 2, 3, 4, 5]
print(6 not in a)  # Output: True
```

7. Identity Operators:

Identity operators are used to compare the memory locations of two objects.

is:

```
a = 10
b = 10
print(a is b)  # Output: True
```

is not:

```
a = 10
b = 20
print(a is not b)  # Output: True
```

Summary of Day 3:

Today, we covered different types of operators in Python, including arithmetic, comparison, logical, assignment, membership, and identity operators. These operators are fundamental for performing various operations in Python programming.