

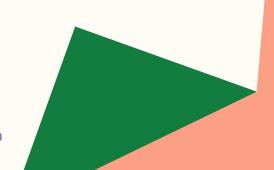
Basic Operators

Day 4 - Python Basics

Shaida Muhammad



ShaidaSherpao@gmail.com



Agenda

Python Online Free Ramzan Course 2025 Taught by: Shaida Muhammad

- 1 Arithmetic operators (+, -, *, /, %, **)
- 2 Comparison operators (==, !=, >, <, etc.)
- 3 Logical operators (and, or, not)
- 4 Hands-on: Write a simple calculator program

Arithmetic Operators

- Purpose: Perform mathematical operations.
- Operators:
 - + (Addition)
 - (Subtraction)
 - * (Multiplication)
 - O / (Division)
 - % (Modulus remainder after division)
 - ** (Exponentiation power of)

• Examples:

```
print(10 + 5)  # Output: 15
print(10 - 5)  # Output: 5
print(10 * 5)  # Output: 50
print(10 / 5)  # Output: 2.0
print(10 % 3)  # Output: 1 (remainder of 10 ÷ 3)
print(2 ** 3)  # Output: 8 (2 raised to the power of 3)
```



Comparison Operators

- Purpose: Compare two values and return True or False.
- Operators:

 - ! = (Not equal to)
 - o > (Greater than)
 - < (Less than)</p>
 - >= (Greater than or equal to)
 - <= (Less than or equal to)</p>

• Examples:

```
print(10 == 5)  # Output: False
print(10 != 5)  # Output: True
print(10 > 5)  # Output: True
print(10 < 5)  # Output: False
print(10 >= 10)  # Output: True
print(10 <= 5)  # Output: False</pre>
```



Logical Operators

 Purpose: Combine multiple conditions and return True or False.

Operators:

- and (True if both conditions are True)
- or (True if at least one condition is True)
- not (Reverses the result, True becomes False and vice versa)

Examples:

```
print(10 > 5 and 5 < 3) # Output: False
print(10 > 5 or 5 < 3) # Output: True
print(not(10 > 5)) # Output: False
```



Hands-On Practice

• Task 1: Perform arithmetic operations on two numbers.

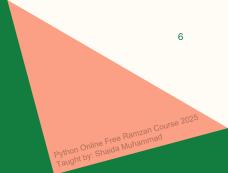
```
num1 = 10
num2 = 5
print(num1 + num2)  # Output: 15
print(num1 - num2)  # Output: 5
print(num1 * num2)  # Output: 50
print(num1 / num2)  # Output: 2.0
print(num1 % num2)  # Output: 0
print(num1 ** num2)  # Output: 100000
```

• Task 2: Compare two numbers using comparison operators.

```
num1 = 10
num2 = 5
print(num1 == num2)  # Output: False
print(num1 != num2)  # Output: True
print(num1 > num2)  # Output: True
print(num1 < num2)  # Output: False</pre>
```

Task 3: Use logical operators to combine conditions.

```
print(10 > 5 and 5 < 3)  # Output: False
print(10 > 5 or 5 < 3)  # Output: True
print(not(10 > 5))  # Output: False
```



Simple Calculator Program

- Goal: Write a program to perform basic arithmetic operations based on user input.
- Steps:
 - 1. Take two numbers as input from the user.
 - 2. Take the operation (+, -, *, /) as input.
 - 3. Perform the operation and display the result.



Simple Calculator Program ...

Code:

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))
operation = input("Enter operation (+, -, *, /): ")
if operation == "+":
   print(f"Result: {num1 + num2}")
elif operation == "-":
   print(f"Result: {num1 - num2}")
elif operation == "*":
   print(f"Result: {num1 * num2}")
elif operation == "/":
   print(f"Result: {num1 / num2}")
else:
   print("Invalid operation!")
```

Recap

- Arithmetic operators (+, -, *, /, %, **).
- Comparison operators (==, !=, >, <, etc.).
- Logical operators (and, or, not).
- Hands-on: Simple calculator program.



Homework

- 1. Write a program to calculate the area of a circle using the formula area = $\pi * r^2$.
- 2. Write a program to check if a number is even or odd using comparison and logical operators.
- 3. Extend the calculator program to include modulus(%) and exponentiation (**).

Basic Operators

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Q&A

- Do you have any questions?
- Share your thoughts or challenges.

Basic Operators



Closing

Next class: Conditional Statements