Welcome to the Operators in Python Lecture

The session will start shortly...

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Johannesburg Team Housekeeping

- Please be mindful and respectful to everyone in this supportive learning environment. Mutual respect and tolerance are fundamental values we uphold.
- There are no bad or silly questions—feel free to ask anything! You can ask Sashlin or myself questions at any time, regardless of the situation. Even if you find yourself in a dire situation—like stuck in quicksand—you're still welcome to ask us a question (though we recommend calling or shouting first!).
- A few additional reminders for onsite behavior:
  - Keep shared spaces tidy—clean up after yourself in the break areas.
  - Please mute your devices during sessions to minimize distractions.
  - Avoid making personal phone calls in common areas—use designated quiet zones if you need to step away.
- Additionally, please remember to put any dishes in the sink before 2 p.m., as Lizbeth will have already finished for the day. If you’re feeling unwell, kindly inform Ingrid or myself via email.

Learning Objectives

- ❖ Understand and describe different types of operators in Python.
- ❖ Use operators to perform various operations in Python programs.
- ❖ Analyze how operators influence Python expressions.

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What Are Operators?

❖ Operators in Python are special symbols used to perform operations on values and variables.

❖ So far, we have used a few basic mathematical operators, namely:

- ➢ **+, -, *, /**: for basic mathematical operations.
- ➢ **%**: Modulus returns the remainder of division.
- ➢ ******: Exponentiation.
- ➢ **//**: Floor division, rounds the result down.

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Comparison Operators

- Comparison operators are used to compare two values or variables. They return a Boolean value (True or False), depending on whether the condition is met.
  - **==:** Checks if two values are equal.
  - **!=:** Checks if two values are not equal.
  - **>:** Checks if the left value is greater than the right.
  - **<:** Checks if the left value is less than the right.
  - **>=:** Checks if the left value is greater than or equal to the right.
  - **<=:** Checks if the left value is less than or equal to the right.

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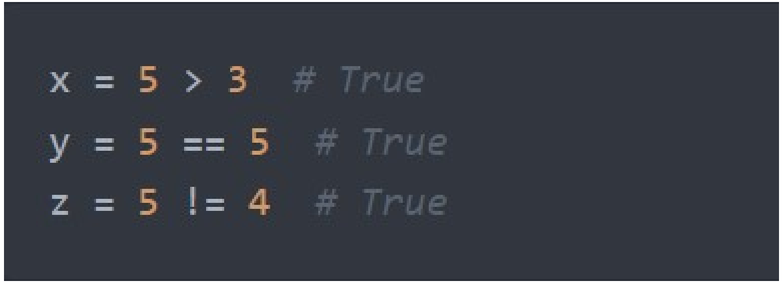
Syntax Breakdown

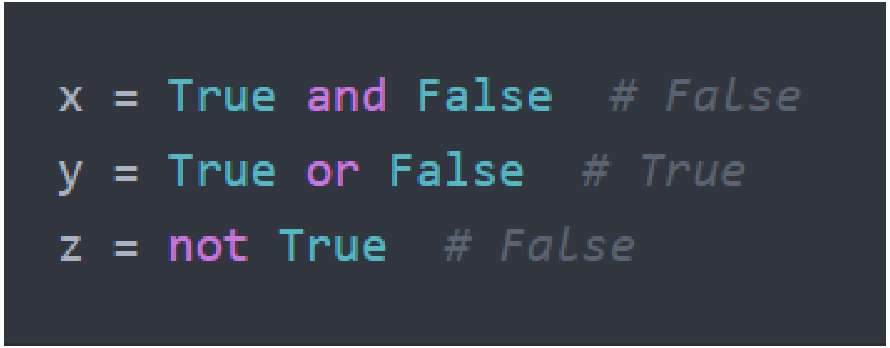


```
x = 5 > 3  # True
y = 5 == 5  # True
z = 5 != 4  # True
```

Logical Operators

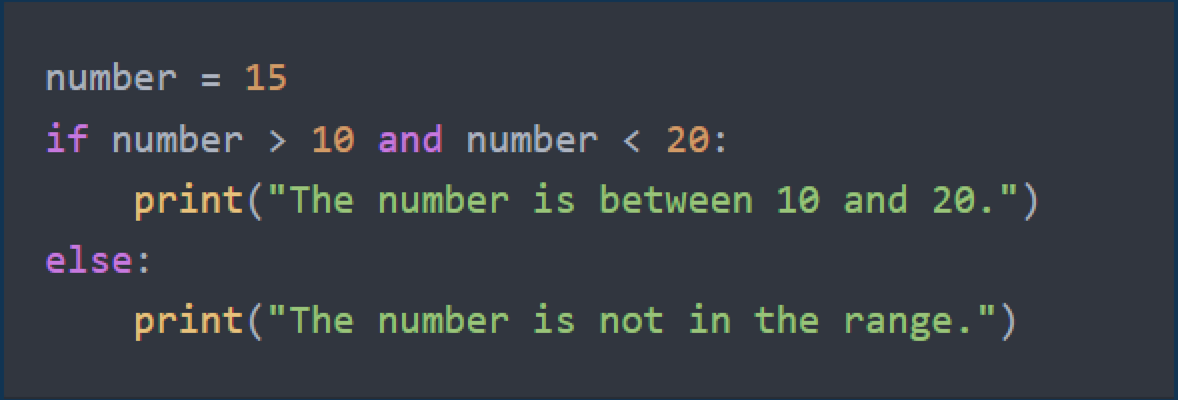
- ❖ Logical operators are used to combine multiple conditions in a program. They allow you to check more than one condition at once, often used in conjunction with comparison operators.
    - ➢ **and:** Returns True if both conditions are true.
    - ➢ **or:** Returns True if at least one condition is true.
    - ➢ **not:** Inverts the Boolean value (turns True into False and vice versa).

Syntax Breakdown



```
x = True and False  # False
y = True or False  # True
z = not True  # False
```

Logical Operator Example

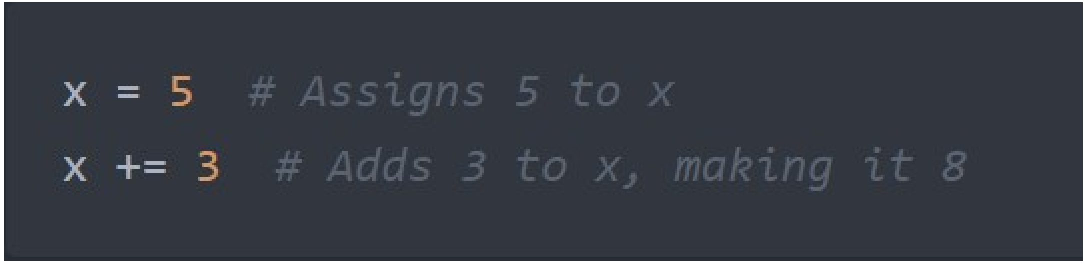


```python
number = 15
if number > 10 and number < 20:
    print("The number is between 10 and 20.")
else:
    print("The number is not in the range.")
```

Assignment Operators

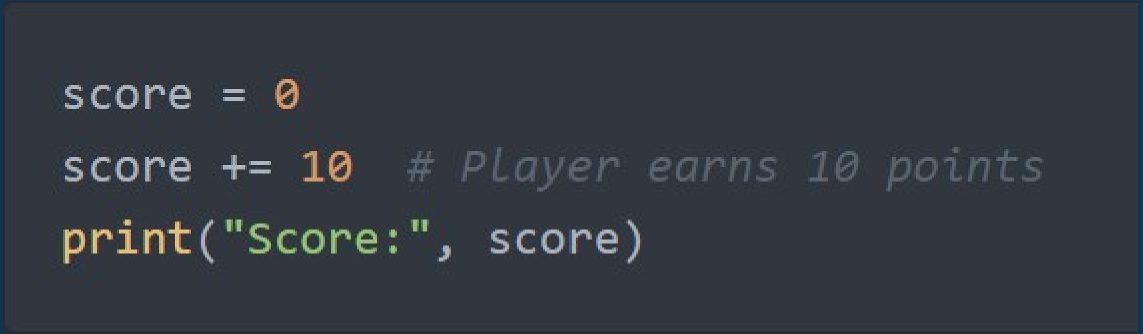
- Assignment operators are used to assign values to variables. The basic assignment operator is =, but there are compound assignment operators that combine an operation with the assignment.
  - **=**: Assigns a value to a variable.
  - **+=**: Adds a value to the variable and reassigns the result.
  - **-=**: Subtracts a value from the variable and reassigns the result.
  - ***=**: Multiplies the variable by a value and reassigns the result.
  - **/=**: Divides the variable by a value and reassigns the result.

Syntax Breakdown



```
x = 5  # Assigns 5 to x
x += 3  # Adds 3 to x, making it 8
```

Assignment Operator Example



```
score = 0
score += 10  # Player earns 10 points
print("Score:", score)
```

Q & A SECTION

Please use this time to ask any questions relating to the topic, should you have any.

Recap of Conditional Statements

- **Arithmetic operators**: Math in Python.
- **Comparison operators**: Check if things are equal or greater/less than.
- **Logical operators**: Combine conditions.
- **Assignment operators**: Set and update variable values.

Thank you for attending