

Operators in Python

Data Science and A.I. Lecture Series

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Operators in Python

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- Types of operators: Arithmetic, Relational, Logical, Bitwise, Assignment, Membership, and Identity.

Arithmetic Operators

Python Code

```
a = 10
b = 5
print(a + b) # Addition
print(a - b) # Subtraction
print(a * b) # Multiplication
print(a / b) # Division
print(a % b) # Modulus
print(a ** b) # Exponentiation
```

Relational Operators

Python Code

```
x = 10
y = 5
print(x > y) # Greater than
print(x < y) # Less than
print(x == y) # Equal to
print(x != y) # Not equal to
print(x >= y) # Greater than or equal to
print(x <= y) # Less than or equal to
```

Python Code

```
x = True
y = False
print(x and y) # Logical AND
print(x or y)  # Logical OR
print(not x)   # Logical NOT
```

Bitwise Operators

Python Code

```
a = 5 # 0101 in binary
b = 3 # 0011 in binary
print(a & b) # Bitwise AND
print(a | b) # Bitwise OR
print(a ^ b) # Bitwise XOR
print(a << 1) # Left shift
print(a >> 1) # Right shift
```

Assignment Operators

Python Code

```
x = 10
x += 5 # Equivalent to x = x + 5
x -= 3 # Equivalent to x = x - 3
x *= 2 # Equivalent to x = x * 2
x /= 2 # Equivalent to x = x / 2
print(x)
```


Membership Operators

Python Code

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

Identity Operators

Python Code

```
a = [1, 2, 3]
b = a
c = [1, 2, 3]
print(a is b) # True
print(a is c) # False
print(a == c) # True
```

Lists in Python

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- A list is an ordered, mutable collection of items.
- Lists can store elements of different data types.

Example: Creating a List

Python Code

```
my_list = [1, 2, 3, "hello", 4.5]  
print(my_list)
```

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- File Handling: Reading/Writing files.

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