**Basic Operations in Python - YouTube Tutorial Guide**

**1. Introduction**

* Briefly introduce the concept of basic operations in Python.
* Explain why understanding these operations is fundamental for programming.
* Mention that the tutorial will cover Arithmetic, String, and Boolean operations with examples.

**2. Arithmetic Operations**

**a. Overview**

* Arithmetic operations allow mathematical computations.
* Python supports various arithmetic operators.

**b. Common Operators**

|  |  |  |
| --- | --- | --- |
| **Operator** | **Description** | **Example** |
| + | Addition | 5 + 3 → 8 |
| - | Subtraction | 5 - 3 → 2 |
| \* | Multiplication | 5 \* 3 → 15 |
| / | Division | 5 / 3 → 1.6667 |
| // | Floor Division /Integer Division | 5 // 3 → 1 |
| % | Modulos (Remainder) | 5 % 3 → 2 |
| \*\* | Exponentiation | 5 \*\* 3 → 125 |

**c. Code Demonstration**

# Arithmetic operations in Python

x = 10

y = 3

print("Addition:", x + y)

print("Subtraction:", x - y)

print("Multiplication:", x \* y)

print("Division:", x / y)

print("Floor Division:", x // y)

print("Modulus:", x % y)

print("Exponentiation:", x \*\* y)

**3. String Operations**

**a. Overview**

* Strings are sequences of characters.
* Python provides various operators to manipulate strings.

**b. Common String Operators**

|  |  |  |
| --- | --- | --- |
| Operator | Description | Example |
| + | Concatenation | 'Hello' + ' World' → 'Hello World' |
| \* | Repetition | 'Hi' \* 3 → 'HiHiHi' |
| [] | Indexing | 'Python'[0] → 'P' |
| [:] | Slicing | 'Python'[1:4] → 'yth' |
| in | Membership | 'Py' in 'Python' → True |
| not in | Non-membership | 'Java' not in 'Python' → True |

**c. Code Demonstration**

# String operations in Python

str1 = "Hello"

str2 = " World"

print("Concatenation:", str1 + str2)

print("Repetition:", str1 \* 3)

print("Indexing:", str1[1])

print("Slicing:", str1[1:4])

print("Membership:", "H" in str1)

print("Non-membership:", "x" not in str1)

**4. Boolean Operations**

**a. Overview**

* Boolean values represent True or False.
* Used in conditions and logical operations.

**b. Common Boolean Operators**

|  |  |  |
| --- | --- | --- |
| Operator | Description | Example |
| and | Logical AND | True and False → False |
| or | Logical OR | True or False → True |
| not | Logical NOT | not True → False |
| == | Equal to | 5 == 5 → True |
| != | Not equal to | 5 != 3 → True |
| > | Greater than | 5 > 3 → True |
| < | Less than | 5 < 3 → False |
| >= | Greater than or equal | 5 >= 5 → True |
| <= | Less than or equal | 3 <= 5 → True |

**c. Code Demonstration**

# Boolean operations in Python

x = 10

y = 5

print("AND Operation:", (x > 5) and (y < 10))

print("OR Operation:", (x < 5) or (y < 10))

print("NOT Operation:", not (x < y))

print("Equality Check:", x == 10)

print("Inequality Check:", x != y)

**5. Summary and Next Steps**

* Recap key points from arithmetic, string, and boolean operations.
* Encourage viewers to try out these operations in a Python environment.
* Suggest next tutorials (e.g., control structures, loops, functions).
* End with a call to action: like, subscribe, and comment for questions.