Module 2: Beginning Python Basics

1. The Print Statement

The print() function is used to display output on the screen.

Syntax:

```
print("Hello, World!")
print(5 + 3)
```

You can print multiple values by separating them with commas:
python

```
print("My age is", 25)
```

2. Comments

Single-line Comments: Begin with # and are ignored by Python.

```
# This is a single-line comment
print("Hello, World!")
```

Multi-line Comments: Use triple quotes to enclose multiple lines.

```
"""
This is a multi-line comment.
It can span multiple lines.
"""
```

3. Python Data Structures & Data Types

Data Types:

Integer: Whole numbers, e.g., 10, -3
Float: Decimal numbers, e.g., 3.14, -2.7
String: Text data, e.g., "Hello", 'Python'
Boolean: True or False

Data Structures:

List: Ordered, changeable collection, e.g., [1, 2, 3]
Tuple: Ordered, unchangeable collection, e.g., (1, 2, 3)
Dictionary: Key-value pairs, e.g., {"name": "John", "age": 30}
Set: Unordered, unique values, e.g., {1, 2, 3}

4. String Operations in Python

Concatenation: Combine strings with +.
```
greeting = "Hello, " + "World!"
```

Repetition: Repeat strings with *.
```
repeated = "ha" * 3  # Outputs "hahaha"
```

String Methods:
.upper(): Converts to uppercase.
.lower(): Converts to lowercase.
.replace("old", "new"): Replaces text.

5. Simple Input and Output

Use input() to prompt the user for input.

```
name = input("Enter your name: ")
print("Hello,", name)
```

6. Simple Output Formatting

F-strings: Use {} to insert variables.
```
age = 25
print(f"My age is {age}")
```

Format Method:
```
print("I am {} years old".format(25))
```

7. Operators in Python

Arithmetic Operators: +, -, *, /, %, //, **
```
result = 5 + 3  # Adds 5 and 3
```

Comparison Operators: ==, !=, <, >, <=, >=
```
is_equal = (5 == 5)  # True
```

Logical Operators: and, or, not
```
result = (5 > 3) and (3 > 1)  # True
```

Tasks for Module 2:

Print Practice: Write a program to print your name, age, and a favorite quote, each on a new line.

Comments Exercise: Write a Python script that includes at least three comments explaining the code.

Data Type Exploration: Create a variable of each data type and print them.
String Manipulation: Write a program to take your full name as input, convert it to uppercase and replace a vowel with another letter.

Input & Output Task: Create a script that asks for your favorite color and displays a message like "Your favorite color is blue!"

Formatted Output: Write a script to take your name and age and print, "My name is [name] and I am [age] years old."

Operators Practice: Write a program that asks for two numbers, performs all arithmetic operations on them, and displays each result.

Resources:

Geeksforgeeks - https://www.geeksforgeeks.org/python-programming-language-tutorial/

W3School - https://www.w3schools.com/python/