

Title: Python Execution Mode Interactive Shell Mode

Description: In this practical, students will work with **Python Interactive Shell Mode** by executing simple Python codes directly and observing their outputs. They will practice basic calculations, mathematical operations, Boolean expressions, and displaying messages using the `print()` function.

Purpose: The purpose of this practical is to provide **hands-on practice in executing Python code directly in the Interactive Shell**, allowing students to quickly test commands, perform calculations, check outputs, and understand how Python responds to individual instructions.

Interactive Shell Mode (Direct Execution)

Scenarios:

Practical 1: Adding two numbers

- **Objective:** Display the sum directly

```
>>> a = 15
>>> b = 25
>>> a + b
40
```

Code Explanation :

In this code, `a = 15` assigns the value 15 to the variable `a`, while `b = 25` assigns 25 to the variable `b`. The expression `a + b` adds the values stored in both variables. Python performs the calculation directly in the Interactive Shell and displays 40 as the output.

Practical 2: Simple Math Calculation

- **Objective:** Multi-operation math check.

```
>>> 10 + 5 * 2
20
>>> (10 + 5) * 2
30
```

Code Explanation :

In the first expression, $10 + 5 * 2$, Python first performs the multiplication because multiplication has a higher priority than addition. So, $5 * 2 = 10$, and then $10 + 10 = 20$. Therefore, the output is 20.

In the second expression, $(10 + 5) * 2$, Python first calculates the values inside the brackets. So, $10 + 5 = 15$, and then $15 * 2 = 30$. Therefore, the output is 30. This shows that using brackets can change the order of calculation and the final result.

Practical 3: Simple Boolean Expressions

- **Objective:** Check the output of comparison operators (True/False).

```
>>> 10 > 5
True
>>> 20 == 25
False
>>> "a" in "apple"
True
```

Code Explanation :

This code shows comparison and membership operators in Python. $10 > 5$ is True because 10 is greater than 5. $20 == 25$ is False because both numbers are not equal. $"a" \text{ in } "apple"$ is True because a is present in apple.

Practical 4: Displaying Messages using print()

- **Objective:** Display simple text messages using the print() function.

```
+ >>> print("Welcome to World of Programming")
Welcome to World of Programming

+ >>> print("Let's start learning Python together!")
Let's start learning Python together!
```

Code Explanation :

This code uses the `print()` function in Python to display messages on the screen. The first line prints a welcome message, and the second line prints a message about starting to learn Python.

Outcome:

By the end of this practical, students will be able to execute Python statements directly in the Interactive Shell, perform basic mathematical calculations, check Boolean expressions, and display messages using the `print()` function. They will also be able to observe and interpret the output generated immediately after executing each command.

Note: Open Python IDLE to perform the practical. The steps for opening IDLE and executing the code are already provided in the book.