Student Details

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Course : B.Tech CSE
Subject : Python Programming
Experiment : 1

Experiment – 1 Python Installation and Starting with Python

Aim

To understand Python installation, basic syntax, variables, operators, and simple programs.

Theory

Python is a high-level, interpreted programming language. It supports interactive and scripting modes and is widely used in software development, data science, and automation.

Program Code

1.

a) Print: Hello Everyone !!!

```python
print("Hello Everyone !!!")
```

b) Print:

```
Hello
World
```

```python
print("Hello")
print("World")
```

c) Print using newline character

```
print("Hello\nWorld")
```

d) Print with quotes and date

```
print(" 'Monal's date of birth is 08\\10\\2007' ")
```

2. Declare a string variable x and print its value

```
# Declaring a string variable
x = "Hello"

# Printing the value of x
print(x)
```

3. Take different data types and print values

```
# Different data types
integer_value = 10
float_value = 25.5
string_value = "Python Programming"
boolean_value = True

# Printing values
print("Integer Value:", integer_value)
print("Float Value:", float_value)
print("String Value:", string_value)
print("Boolean Value:", boolean_value)
```

4. Print full name by adding first name and last name

```
# Assigning first name and last name
a = "Monal"
b = "Ambwani"

# Printing full name
print("Full Name:", a + " " + b)
```

5. Print name with nickname in parenthesis

```
# Declaring variables
first_name = "George"
```

```
last_name = "Washington"
nickname = "Woody"

# Printing in required format
print(first_name + " (" + nickname + ") " + last_name)
```

6. Print personal details in specified format

```
# Declaring variables
name = "MONAL AMBWANI"
sap_id = "590022987"
dob = "08 Oct 2007"
address = "UPES\nBidholi Campus"
pincode = "248007"
programme = "BTech CSE"
semester = "2"

# Printing details
print("NAME :", name)
print("SAP ID :", sap_id)
print("DATE OF BIRTH :", dob)
print("ADDRESS :", address)
print("Pincode :", pincode)
print("Programme :", programme)
print("Semester :", semester)
```

7. Print Age and Its Data Type

```
age = 21
print(age)
print(type(age))
```

8. Printing Different Data Types

```
a = 10
b = 3.14
c = "Python"
d = True
print(a, b, c, d)
```

9. Arithmetic Operations

```
x = 9
y = 7
```

```python
print("Addition:", x + y)
print("Multiplication:", x * y)
print("Division:", x / y)
print("Subtraction:", x - y)
```

10. Hypotenuse Using Pythagoras Theorem

```python
import math
a = 3
b = 4
c = math.sqrt(a*a + b*b)
print("Hypotenuse:", c)
```

11. Simple Interest

```python
p = 1000
r = 5
t = 2
si = (p * r * t) / 100
print("Simple Interest:", si)
```

12. Area of Triangle

```python
import math
a = 3
b = 4
c = 5
s = (a + b + c) / 2
area = math.sqrt(s*(s-a)*(s-b)*(s-c))
print("Area:", area)
```

13. Convert Seconds

```python
seconds = 3665
hours = seconds // 3600
seconds %= 3600
minutes = seconds // 60
seconds %= 60
print(hours, "hours", minutes, "minutes", seconds, "seconds")
```

14. Swap Two Numbers

```python
a = 5
b = 10
a, b = b, a
print(a, b)
```

15. Sum of First n Natural Numbers

```python
n = 10
sum = n * (n + 1) // 2
print("Sum:", sum)
```

16. Bitwise Operators

```python
a = 1
b = 0
print("AND:", a & b)
print("OR:", a | b)
print("XOR:", a ^ b)
```

17. Shift Operators

```python
x = 8
print("Left Shift:", x << 1)
print("Right Shift:", x >> 1)
```

18. Membership Operator

```python
seq = (10, 20, 56, 78, 89)
num = 56
print(num in seq)
```

Output

Installation

1.

a)

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\strings.py"
Hello Everyone !!!
```

b)

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\strings.py"
Hello
World
```

c)

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\strings.py"
Hello
World
```

d)

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\strings.py"
 'Monal's date of birth is 08\10\2007'
```

2.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\OUTPUTS"
Hello
```

3.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\OUTPUTS"
Integer Value: 10
Float Value: 25.5
String Value: Python Programming
Boolean Value: True
```

4.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\OUTPUTS"
Full Name: Monal Ambwani
```

5.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\OUTP
George (Woody) Washington
```

6.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_2\OUTPUTS"
NAME : MONAL AMBWANI
SAP ID : 590022987
DATE OF BIRTH : 08 Oct 2007
ADDRESS : UPES
Bidholi Campus
Pincode : 248007
Programme : BTech CSE
Semester : 2
```

7.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
21
<class 'int'>
```

8.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
10 3.14 Python True
```

9.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
Addition: 16
Multiplication: 63
Division: 1.2857142857142858
Subtraction: 2
```

10.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
Hypotenuse: 5.0
```

11.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
Simple Interest: 100.0
```

12.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
Area: 6.0
```

13.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
1 hours 1 minutes 5 seconds
```

14.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
10 5
```

15.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
Sum: 55
```

16.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
AND: 0
OR: 1
XOR: 1
```

17.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
Left Shift: 16
Right Shift: 4
```

18.

```
[Running] python -u "c:\Users\91789\OneDrive\Python\Experiment_1\OUTPUTS"
True
```

Observations

```
1. Python programs are executed line by line using the Python interpreter.

2. Variables in Python can store different types of data without declaring their
type.

3. The print() function is used to display text and variable values on the output
screen.

4. String values can be concatenated using the + operator.

5. Escape characters like \n help in formatting the output.

6. Python syntax is simple and easy to understand.

7. Errors are displayed clearly, making debugging easier.
```

Result

1.All the given Python programs were written correctly.

2. The programs were executed without any errors.

3. The output obtained was as expected.

4. The objectives of the experiment were successfully achieved.