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Lab 1: Python_Operators

Q.1 Write a python program for arithmetic operators.

Ans:

```
# Define two numbers
num1 = 16
num2 = 5
# Addition
result = num1 + num2
print ("Addition:", result )
# Subtraction
result = num1 - num2
print ("Subtraction:", result)
# Multiplication
result = num1 * num2
print ("Multiplication:", result)
# Division
result = num1 / num2
print ("Division:", result)
# Modulus
result = num1 % num2
print ("Modulus:", result)
```

```
# Exponentiation
result = num1 ** num2
print ("Exponentiation:", result)
# Floor Division
result = num1 // num2
print ("Floor Division:", result)
```

Output:

```
>>>
= RESTART: C:/Users/sunko/AppData/Local/Programs/Python/Python312/python lab1.py
Addition: 21
Subtraction: 11
Multiplication: 80
Division: 3.2
Modulus: 1
Exponentiation: 1048576
Floor Division: 3
>>>
```

Q.2 Write a python program for assignment operators

Ans:

```
# Assignment Operators
# 1. Simple Assignment Operator (=)
a = 18
print ("a =", a)
# 2. Addition Assignment Operator (+=)
a += 3
print ("a =", a)
```

```
# 3. Subtraction Assignment Operator (-=)
a -= 2
print ("a =", a)
# 4. Multiplication Assignment Operator (*=)
a *= 4
print ("a =", a)
# 5. Division Assignment Operator (/=)
a /= 2
print ("a =", a)
# 6. Modulus Assignment Operator (%=)
a %= 3
print ("a =", a)
# 7. Exponentiation Assignment Operator (**=)
a **= 2
print ("a =", a)
# 8. Floor Division Assignment Operator (//=)
a //= 2
print ("a =", a)
# 9. Bitwise AND Assignment Operator (&=)
a = 5
a &= 3
print ("a =", a)
# 10. Bitwise OR Assignment Operator (|=)
a = 5
a |= 3
print ("a =", a)
```

```
# 11. Bitwise XOR Assignment Operator (^=)
a = 5
a ^= 3
print ("a =", a)
# 12. Bitwise Right Shift Assignment Operator (>>=)
a = 5
a >>= 1
print ("a =", a)
# 13. Bitwise Left Shift Assignment Operator (<<=)
a = 5
a <<= 1
print ("a =", a)
```

Output:

```
>>>
================== RESTART: C:/Users/sunko/AppData/Local/Programs/Python/Python312/python lab1.py ==================
a = 18
a = 21
a = 19
a = 76
a = 38.0
a = 2.0
a = 4.0
a = 2.0
a = 1
a = 7
a = 6
a = 2
a = 10
...
```

Q.3) Write a python program for Bitwise operators.

Ans:

```
# Bitwise Operators
# 1. Bitwise AND (&)
a = 5   # 101 in binary
b = 3   # 011 in binary
print ("a & b =", a & b)
# 2. Bitwise OR (|)
a = 5   # 101 in binary
b = 3   # 011 in binary
print ("a | b =", a | b)
# 3. Bitwise XOR (^)
a = 5   # 101 in binary
b = 3   # 011 in binary
print ("a ^ b =", a ^ b)
# 4. Bitwise NOT (~)
a = 5   # 101 in binary
print ("~a =", ~a)
# 5. Bitwise Left Shift (<<)
a = 5   # 101 in binary
print ("a << 1 =", a << 1)
print ("a << 2 =", a << 2)
# 6. Bitwise Right Shift (>>)
a = 20 # 10100 in binary
print ("a >> 1 =", a >> 1)
print ("a >> 2 =", a >> 2)
```

Output:

```
>>>
================== RESTART: C:/Users/sunko/AppData/Local/Programs/Python/Python312/python lab1.py ======
a & b = 1
a | b = 7
a ^ b = 6
~a = -6
a << 1 = 10
a << 2 = 20
a >> 1 = 10
a >> 2 = 5
>>>
```

Q.4) Write a python program to calculate greatest of three numbers.

Ans:

```
# Define the three numbers
num1 = 108
num2 = 22
num3 = 200
# Calculate the greatest of the three numbers
greatest = max (num1, num2, num3)
# Print the result
print ("The greatest of the three numbers is:", greatest)
```

Output:

```
>>>
================== RESTART: C:/Users/sunko/AppData/Local/Programs/Python/Python312/python lab1.py ==================
The greatest of the three numbers is: 200
>>>
```

Ln: 121 Col: 0