JAVIER, SALVADOR VINCENT R.
BSIT 2-1

Activity #2 – Operators

General Instructions:

1. Create a Java program based on the questions.
2. Follow the exact required output shown in the question.
3. You must use the specific operator required in each number.
4. Do NOT hardcode the final answers (e.g., System.out.println(86); without computation is not allowed).
5. Show proper use of variables and correct operator usage.
6. Follow proper Java syntax, indentation, and naming conventions.
7. Use System.out.println() for displaying output.
8. Screenshot the code and the output.
9. Compile and run your program to verify correctness before submission.
10. Submission Format: Section_LastName_FirstName_OperatorsActivity#2.pdf

Please answer the following questions:

PART I:

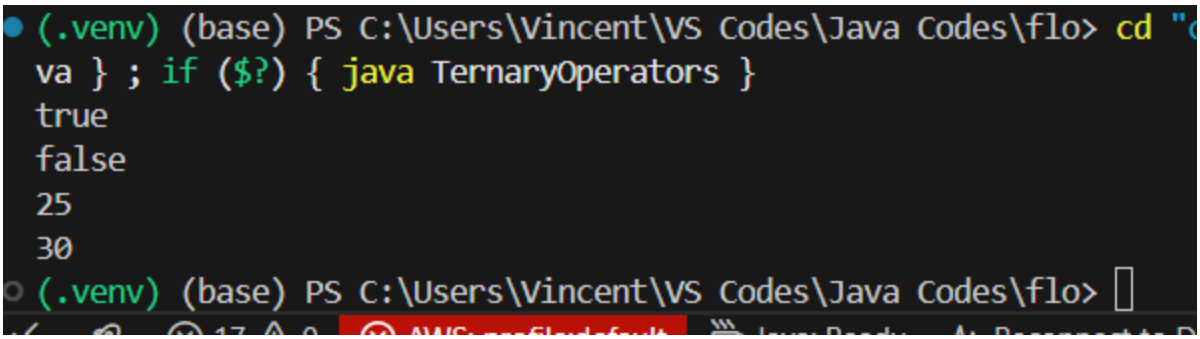
1. Create a Java program using bitwise operators that will produce the output: true, 10, false, 15.
2. Create a Java program using the ternary operator that will produce the output: true, false, 25, 30.
3. Create a Java program using assignment operators that will produce the output: Addition: 120, Subtraction: 70, Multiplication: 144, Division: 16.

```
4. public class BitwiseOperators {
5.     public static void main(String[] args) {
6.
7.         int x = 12;   // 1100
8.         int y = 10;   // 1010
9.
10.        boolean result1 = (x & y) == 8;   // 1100 & 1010 = 1000 (8)
11.        System.out.println(result1);
12.
13.        int result2 = 8 | 2;  // 1000 | 0010 = 1010 (10)
14.        System.out.println(result2);
15.
16.        boolean result3 = (x ^ y) == 8;   // 1100 ^ 1010 = 0110 (6) ≠ 8
17.        System.out.println(result3);
18.
19.        int result4 = 15 >> 0;   // 15 shifted 0 times = 15
20.        System.out.println(result4);
21.    }
```

```
22.}
```

```
(.venv) (base) PS C:\Users\Vincent\VS Codes\Java Codes\f
va } ; if ($?) { java BitwiseOperators }
true
10
false
15
(.venv) (base) PS C:\Users\Vincent\VS Codes\Java Codes\f
```

2.
```
public class TernaryOperators {
    public static void main(String[] args) {

        int a = 20;
        int b = 15;

        boolean result1 = (a > b) ? true : false;
        System.out.println(result1);

        boolean result2 = (a < b) ? true : false;
        System.out.println(result2);

        int result3 = (a > b) ? 25 : 0;
        System.out.println(result3);

        int result4 = (b > a) ? 0 : 30;
        System.out.println(result4);
    }
}
```



3.
```
public class AssignmentOperators {
    public static void main(String[] args) {

        int num1 = 100;
        num1 += 20;
        System.out.println("Addition: " + num1);

        int num2 = 100;
        num2 -= 30;
        System.out.println("Subtraction: " + num2);

        int num3 = 12;
        num3 *= 12;
        System.out.println("Multiplication: " + num3);

        int num4 = 64;
        num4 /= 4;
        System.out.println("Division: " + num4);
    }
}
```

```
(.venv) (base) PS C:\Users\Vincent\VS Codes\Java Codes\flo> cd "c:\Use
.java } ; if ($?) { java AssignmentOperators }
Addition: 120
Subtraction: 70
Multiplication: 144
Division: 16
(.venv) (base) PS C:\Users\Vincent\VS Codes\Java Codes\flo>
```

PART II:

Program Requirements:

1. Use at least five (5) different operators from the following categories:
   - Arithmetic operators (+, -, *, /, %)
   - Relational operators (>, <, >=, <=, ==, !=)
   - Logical operators (&&, ||, !)
   - Unary operators (++, --)
   - Assignment operators (+=, -=, *=, /=)
   - Bitwise operators (&, |, ^, <<, >>)

2. The program must produce exactly six (6) outputs only.
3. At least one output must include a tricky increment or decrement case, such as:
   - a++ + ++a
   - --b + b++
   - or any similar expression that modifies the variable within the same statement.
4. Do NOT reuse:
   - Any variable values
   - Any variable names
   - Any logic patterns from Part I.
5. The output must contain:

- At least two (2) boolean results
- At least four (4) numeric results

```java
public class PartTwoOperators {
    public static void main(String[] args) {

        int m = 5;
        int tricky = m++ + ++m;
        System.out.println(tricky);   // tricky increment case

        int n = 18;
        int bitShift = n << 1;
        System.out.println(bitShift);

        int p = 50;
        p -= 20;
        System.out.println(p);

        int q = 27;
        int remainder = q % 4;
        System.out.println(remainder);

        boolean check1 = (tricky > bitShift) && (p < n);
        System.out.println(check1);

        boolean check2 = !(remainder == 3);
        System.out.println(check2);
    }
}
```

```
(.venv) (base) PS C:\Users\Vincent\VS Codes\Java Codes\flo> cd "c:\Use
va } ; if ($?) { java PartTwoOperators }
12
36
30
3
false
false
(.venv) (base) PS C:\Users\Vincent\VS Codes\Java Codes\flo>
```