NUML
National University of Modern Languages

BS-Software Engineering 2nd-E

LAB #1

OOP

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Roll# SP-21-110
NUML-S21-23529

Title: Lab Report 1

Submitted to

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National University of Modern Languages

Object Oriented Programming

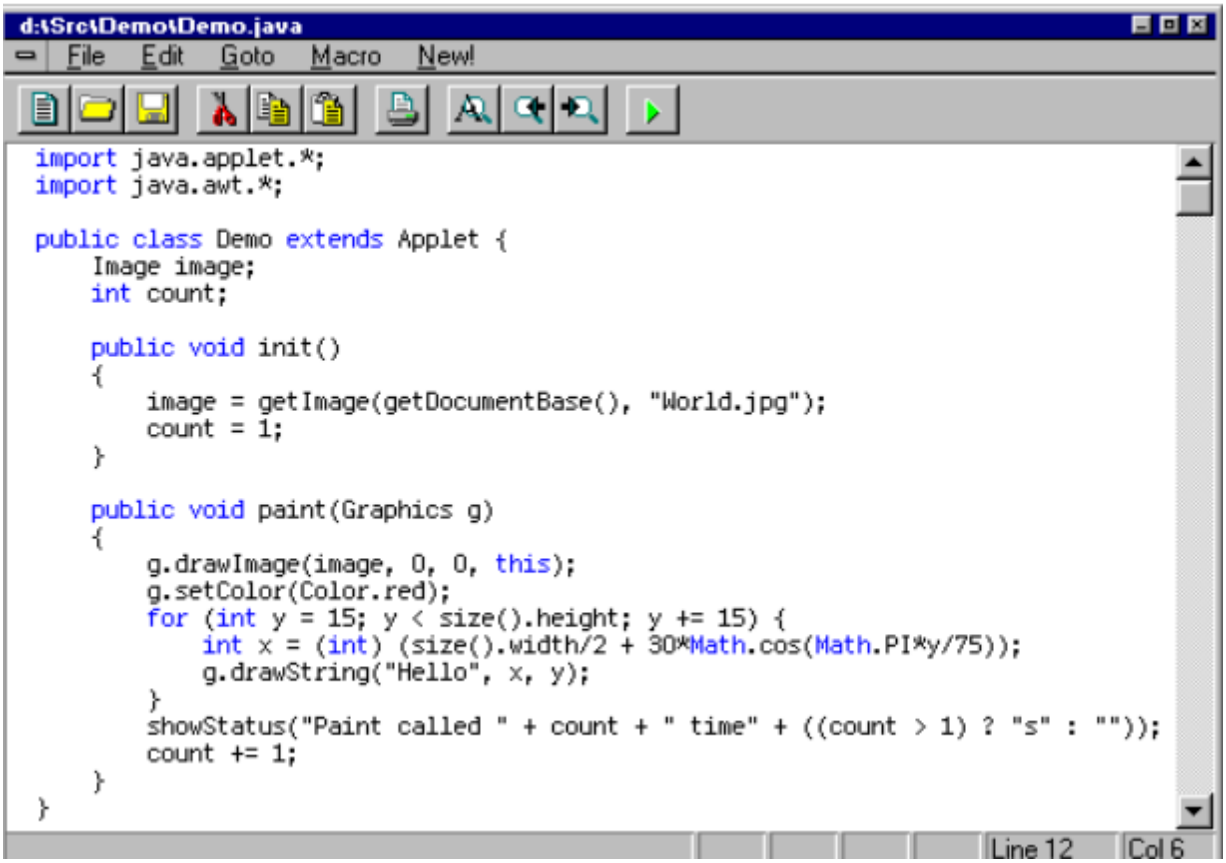
Week 1 (27-9-2021)

Table of Contents

7	Bitwise Operators

What is A Program?

A **computer program** (also a software program, or just a program) is a sequence of instructions written to perform a specified task for a computer.



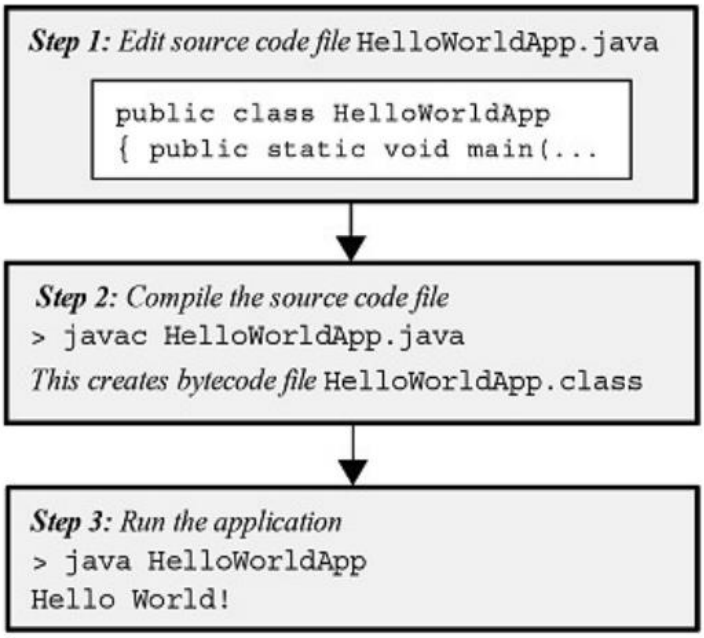
Getting Started

To begin developing Java programs, follow these steps:

Step 1: Obtain the Software Development Kit (SDK) for J2SE (Java 2 Platform, Standard Edition) or JDK

Step 2: Install the JDK

Simple Java Application



- **Step 1:** Use an editor to enter the following code for the HelloWoldApp program:

HelloWorldApp Application

```
public class HelloWorldApp
{
  public static void main(String arg[])
  {
    System.out.println("Hello World!");
  }
}
```

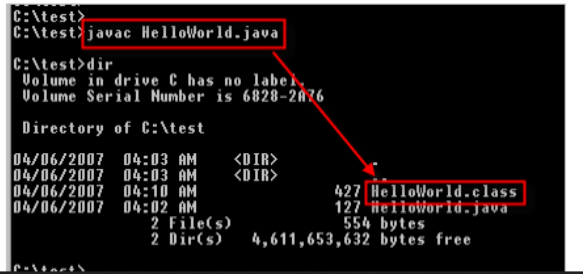
- Save this code in a file called HelloWorldApp.java

- **Step 2:** Compile the application with the command line:

  > javac HelloWorldApp.java

- This creates the class file (with the bytecode output):

  HelloWorldApp.class



- **Step 3:** Use the java command to run the program:

  > java HelloWorldApp

- The output is printed after the command line.

First Program in Java

```
public class HelloWorld {
    public static void main(String[] args)
 {
        System.out.println("Hello World");
    }

}
```

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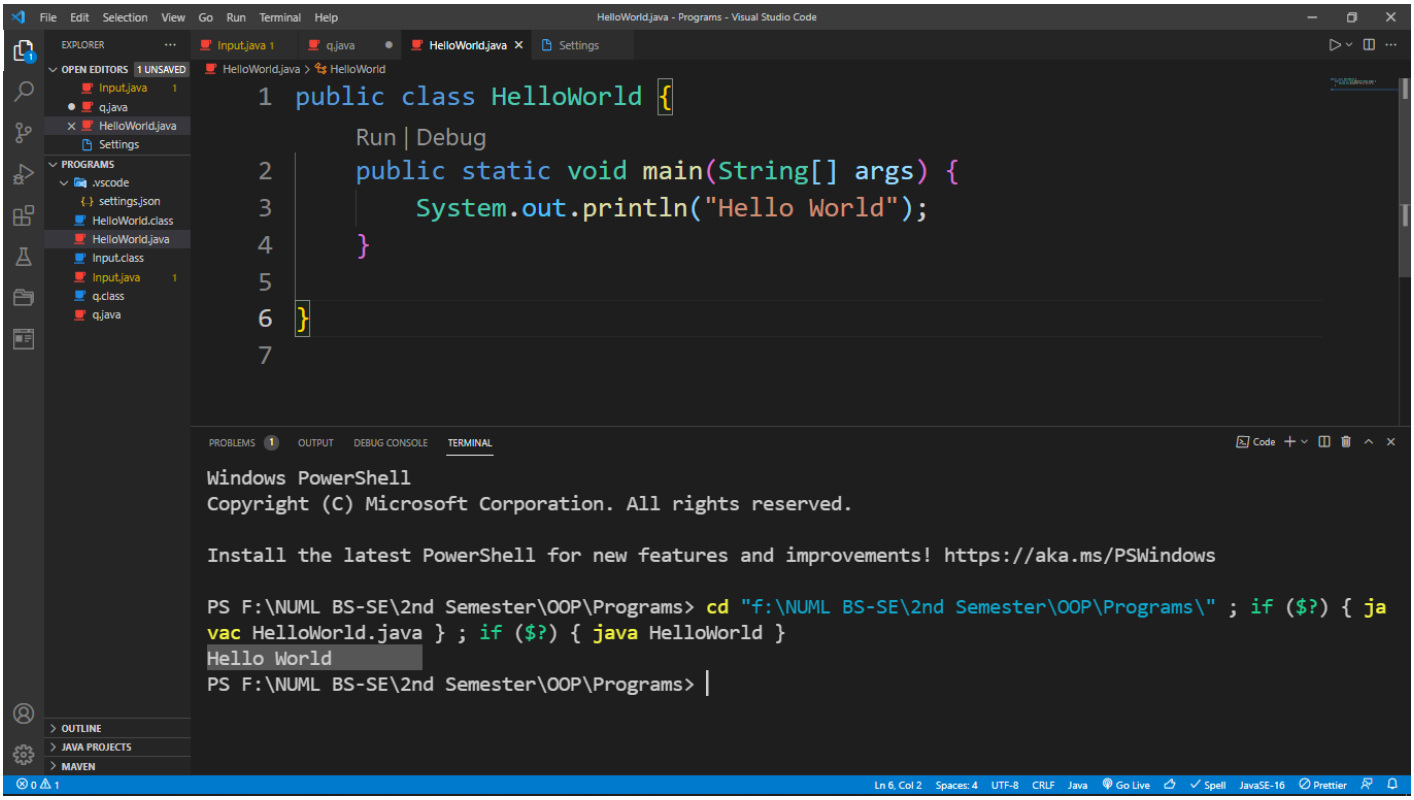

Simple Arthimetic in Java

```java
public class SimpleArithmetic {
    public static void main(String[] args) {
        int j, k, p, q, r, s, t;
        j = 5;
        k = 2;
        p = j + k;
        q = j - k;
```

```
        r = j * k;
        s = j / k;
        t = j % k;
        System.out.println("p = " + p);
        System.out.println("q = " + q);
        System.out.println("r = " + r);
        System.out.println("s = " + s);
        System.out.println("t = " + t);
    }

}
```

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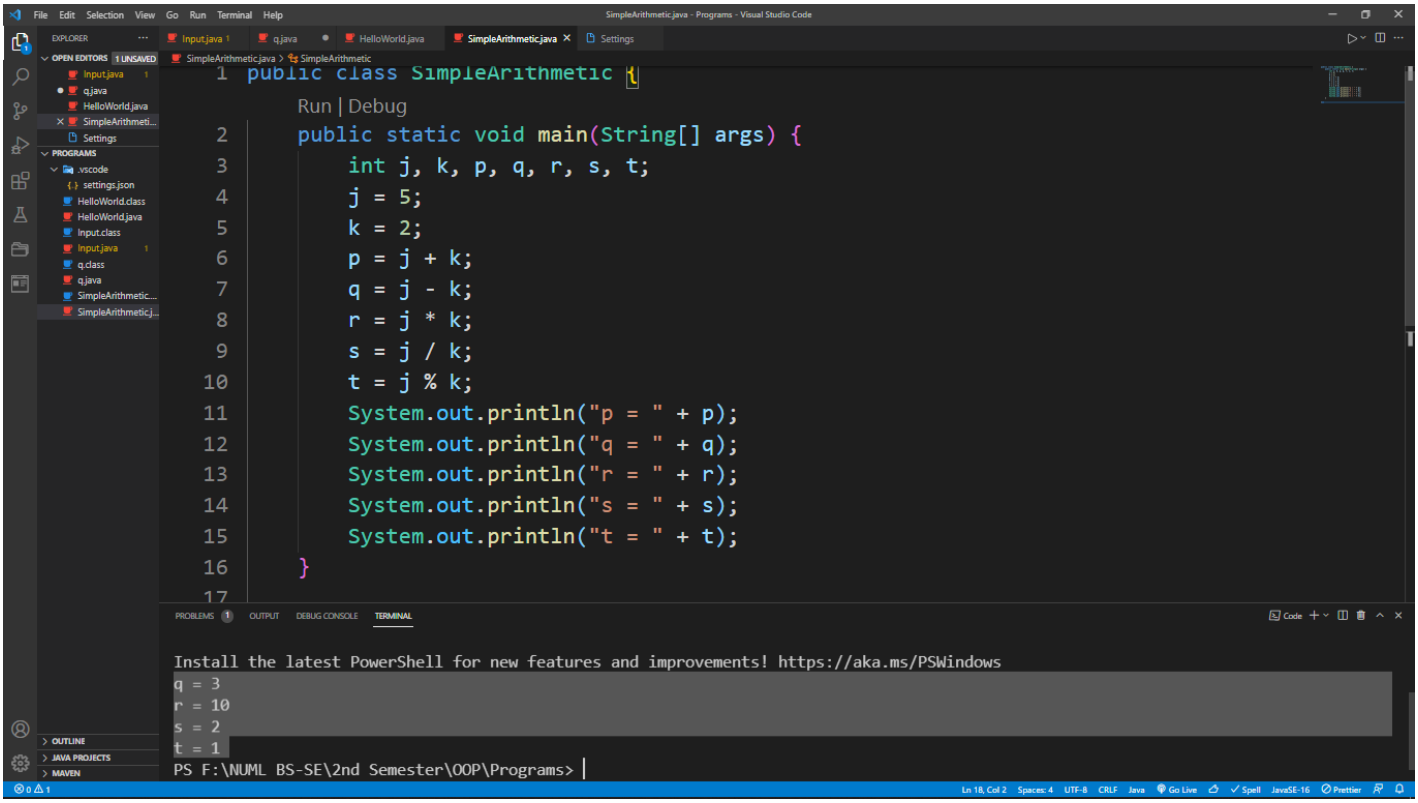

Short Hand Operator

```
public class ShortHandO {
    public static void main(String[] args)
 {
        int j, p, q, r, s, t;
        j = 5;
        p = 1;
        q = 2;
        r = 3;
```

```
        s = 4;
        t = 5;
        p += j;
        q -= j;
        r *= j;
        s /= j;
        t %= j;
        System.out.println("p = " + p);
        System.out.println("q = " + q);
        System.out.println("r = " + r);
        System.out.println("s = " + s);
        System.out.println("t = " + t);
    }
}
```

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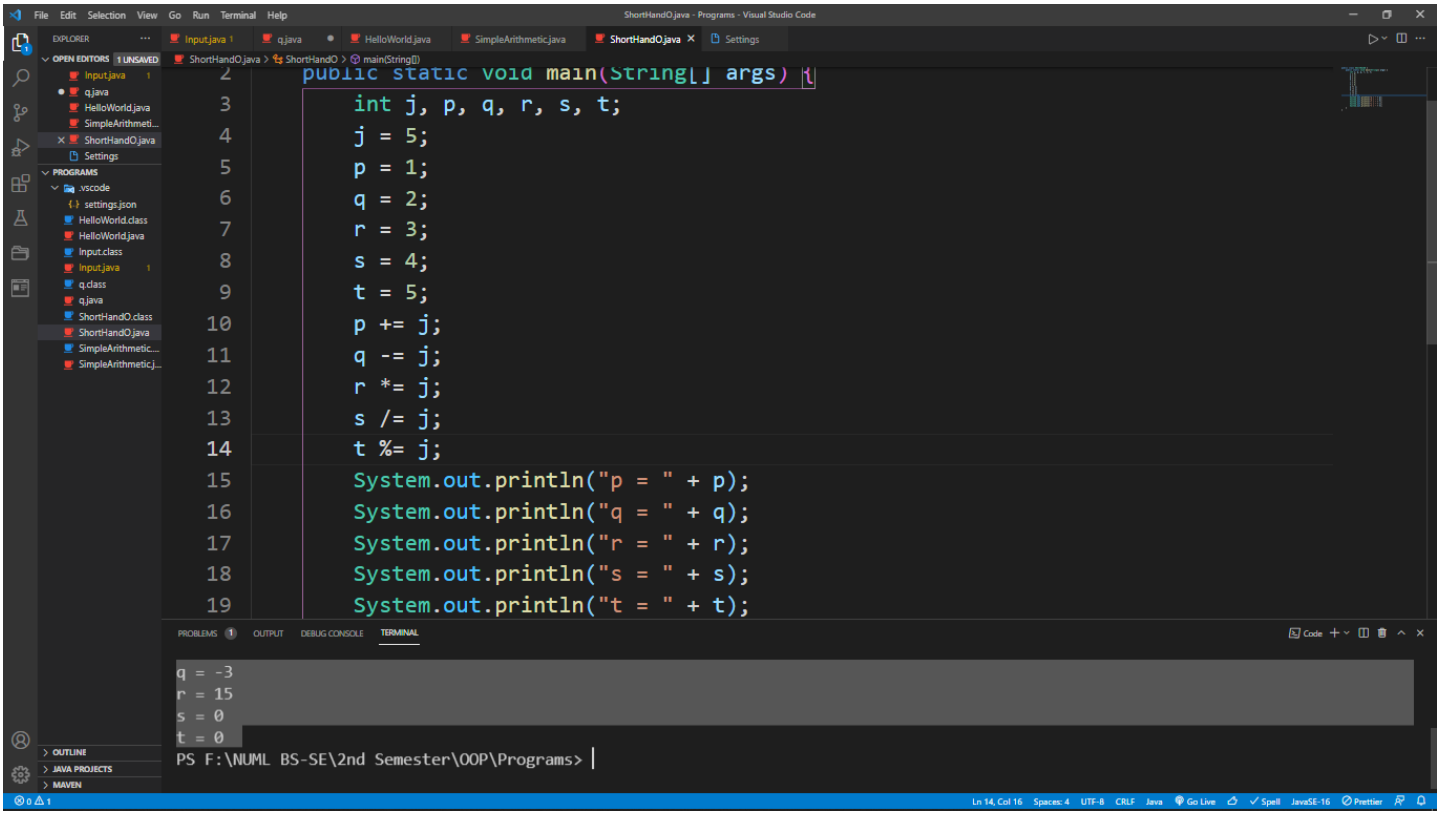
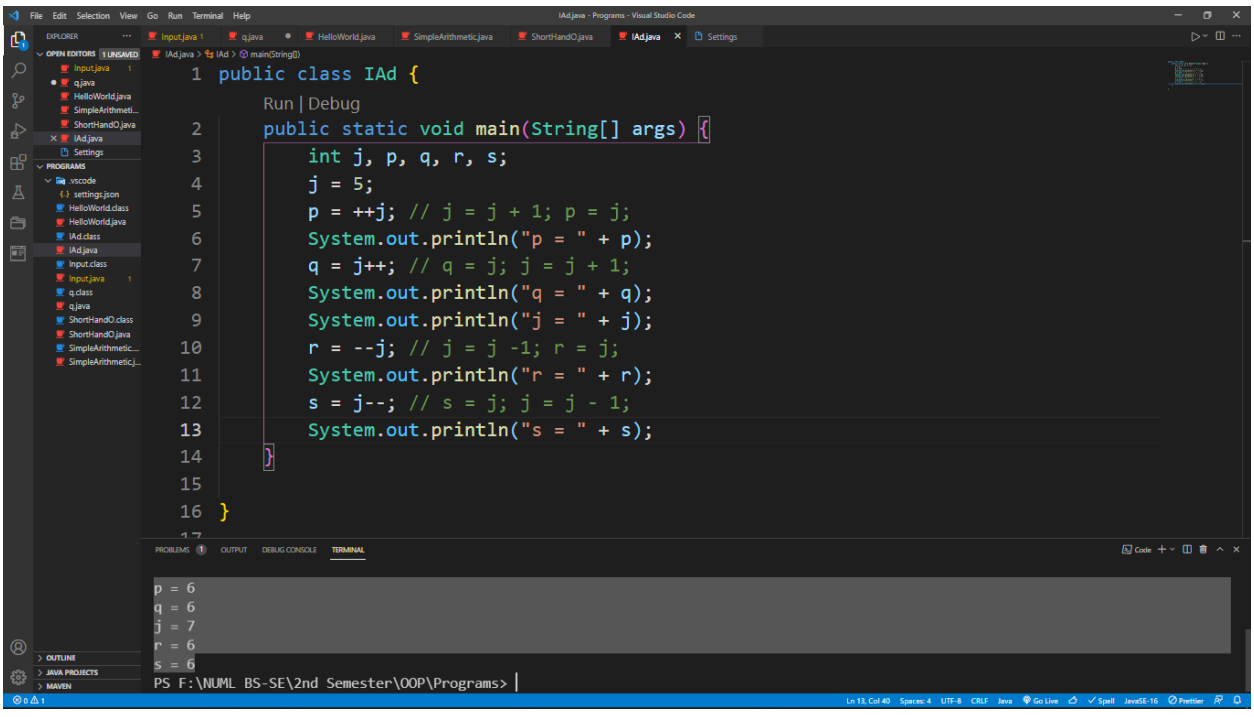


Increment & Decrement



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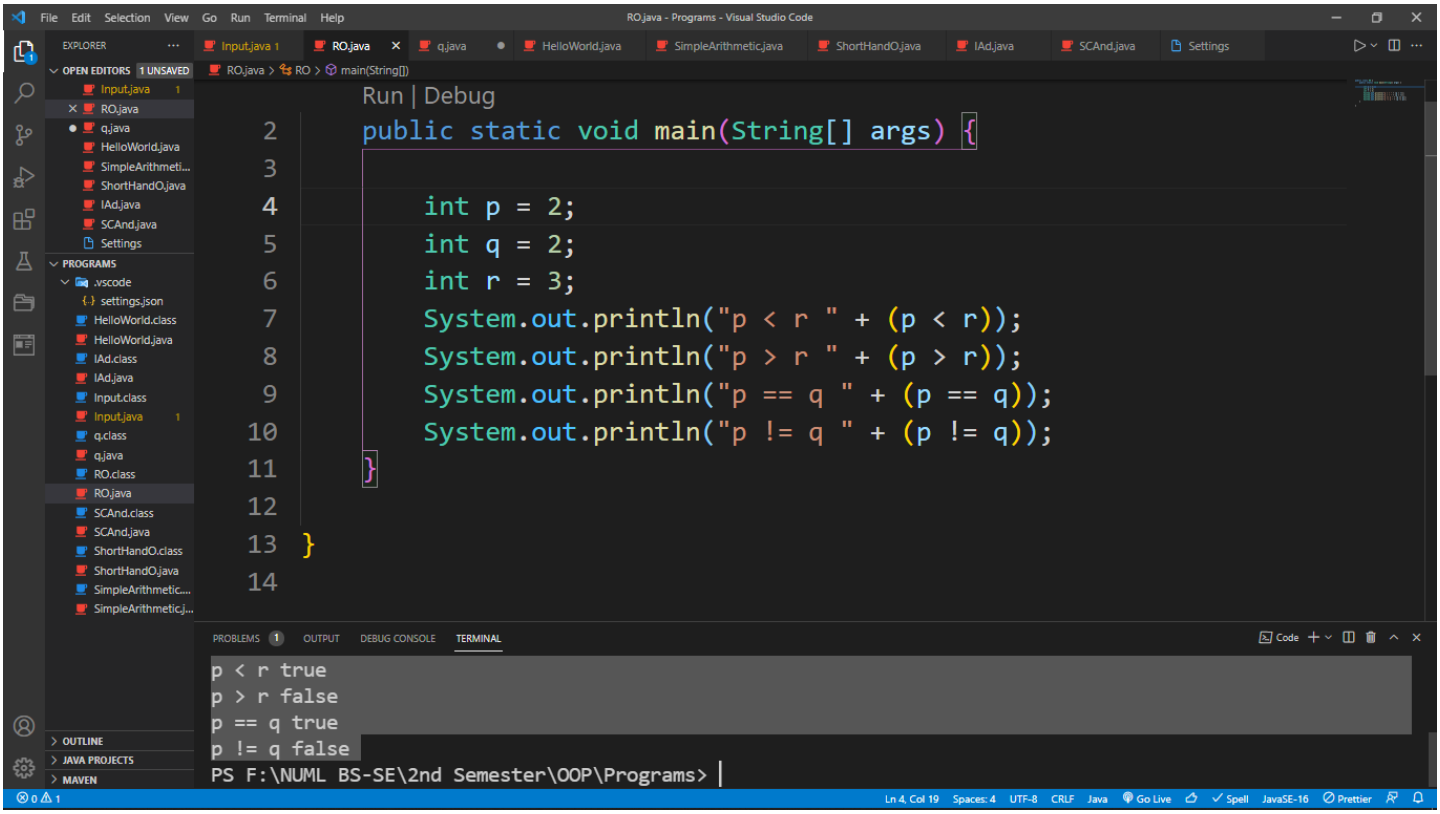
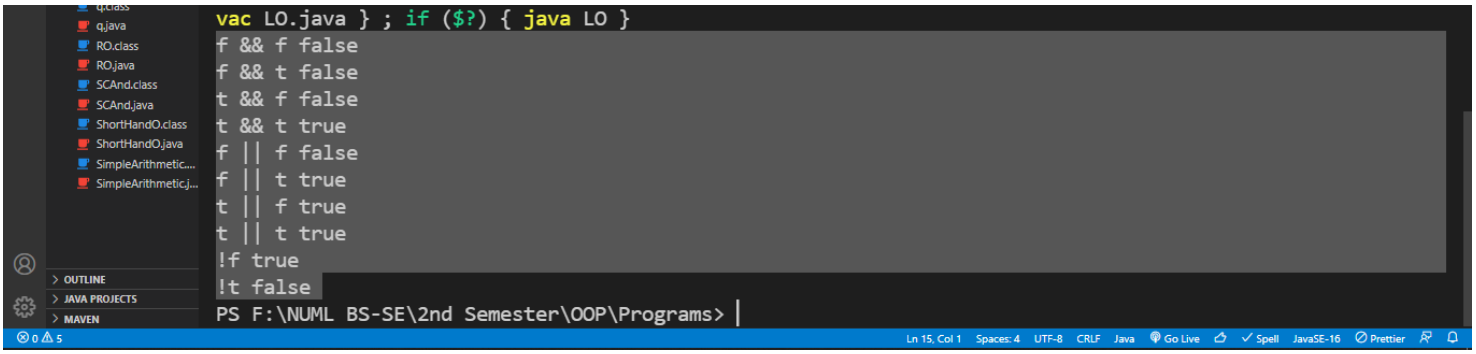
Relational Operators



Logical Operators

```
public class LO {

    public static void main(String[] args) {

        boolean t = true;

        boolean f = false;

        System.out.println("f && f " + (f && f));
```

```
        System.out.println("f && t " + (f && t));
        System.out.println("t && f " + (t && f));
        System.out.println("t && t " + (t && t));
        System.out.println("f || f " + (f || f));
        System.out.println("f || t " + (f || t));
        System.out.println("t || f " + (t || f));
        System.out.println("t || t " + (t || t));
        System.out.println("!f " + !f);
        System.out.println("!t " + !t);

    }

}
```



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Logical BIT Operators

```
public class LBOperator {
    public static void main(String[] args)
 {
        int a = 10; // 00001010 = 10
        int b = 12; // 00001100 = 12
        int and, or, xor, na;
        and = a & b; // 00001000 = 8
        or = a | b; // 00001110 = 14
        xor = a ^ b; // 00000110 = 6
        na = ~a; // 11110101 = -11
        System.out.println("and " + and);
        System.out.println("or " + or);
       System.out.println("xor " + xor);
        System.out.println("na " + na);
    }
}
```

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```
PS F:\NUML BS-SE\2nd Semester\OOP\Programs> cd "f:\NUML BS-SE\2nd Semester\OOP\Programs\" ; if ($?) { ja
vac LBO.JAVA } ; if ($?) { java LBO }
error: Class names, 'LBO.JAVA', are only accepted if annotation processing is explicitly requested
1 error
PS F:\NUML BS-SE\2nd Semester\OOP\Programs> cd "f:\NUML BS-SE\2nd Semester\OOP\Programs\" ; if ($?) { ja
vac LBOperator.java } ; if ($?) { java LBOperator }
and 8
or 14
xor 6
na -11
PS F:\NUML BS-SE\2nd Semester\OOP\Programs>
```

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