```java
public class IfStatement {  // 2310080053 - Sweshik Reddy.

    public static void main(String[] args) {
        int num1, num2;  // Declaring num1, num2

        // Initializing num1, num2
        num1 = 10;
        num2 = 20;

        // If num1 is greater than num2
        if(num1 < num2) System.out.println("Num1 is less than Num2.");
        num1*=2; // Updating num1 value
        // If num1 equal to num2
        if(num1 == num2) System.out.println("Num1 is equal to Num2.");
        num1*=2; // Updating num1 value
        if(num1 > num2) System.out.println("Num1 is greater than Num2.");

        // This will not be printed
        if(num1 == num2) System.out.println("You won't see this.");
    }
}
```

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=49983:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
Num1 is less than Num2.
Num1 is equal to Num2.
Num1 is greater than Num2.

Process finished with exit code 0
```

```java
public class ForLoop {

    public static void main(String[] args) {
        for(int x=0; x<10; x++) {
            System.out.println("The value of x is: " + x);
        }
    }
}
```

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50064:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
The value of x is: 0
The value of x is: 1
The value of x is: 2
The value of x is: 3
The value of x is: 4
The value of x is: 5
The value of x is: 6
The value of x is: 7
The value of x is: 8
The value of x is: 9

Process finished with exit code 0
```

```java
public class BlockTest {
    public static void main(String[] args) {
        int x,y;
        y=20;

        for(x=0; x<10; x++) {
            System.out.println("The value of x is " + x);
            System.out.println("The value of y is " + y);

            y-=2; // Decrementing the value of y by 2 after each iteration.
        }
    }
}
```

Run — BlockTest

```
The value of y is 12
The value of x is 5
The value of y is 10
The value of x is 6
The value of y is 8
The value of x is 7
The value of y is 6
The value of x is 8
The value of y is 4
The value of x is 9
The value of y is 2

Process finished with exit code 0
```

```java
public class LightSpeed {
    public static void main(String[] args) {
        int lightSpeed;
        long days, seconds, distance;

        lightSpeed = 186000; // Approximate speed of light.
        days = 1000; // adjust the number of days.

        seconds = days * 24 * 60 * 60; // Time in seconds.
        distance = lightSpeed * seconds; // Compute distance

        System.out.println("In " + days + " days light will travel about " + distance + " miles." );
    }
}
```

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50111:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
In 1000 days light will travel about 16070400000000 miles.

Process finished with exit code 0
```

```java
public class DoubleExample {
    public static void main(String[] args) {
        double pi, radius, area;

        radius = 10.8;
        pi = 3.1416;
        area = pi * radius * radius; // Computing area of Circle

        System.out.println("The Area of circle is " + area);
    }
}
```

Run   DoubleExample ×

"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50140:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
The Area of circle is 366.436224

Process finished with exit code 0

```java
public class CharDemo {
    public static void main(String[] args) {
        char ch1, ch2;

        ch1 = 88; // Code for X
        ch2 = 'Y';

        System.out.print("The value of Ch1 and Ch2 are: ");
        System.out.println(ch1 + " " + ch2);
    }
}
```

Run   CharDemo

"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50152:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
The value of Ch1 and Ch2 are: X Y

Process finished with exit code 0

```java
public class CharDemo {
    public static void main(String[] args) {
        char ch1;

        ch1 = 'X'; // Initalizing ch1 with X.

        System.out.println("Original Ch1 value = " + ch1);

        ch1++; // Incrementing ch1 value by 1. X -> Y.

        System.out.println("The value of Ch1 after incrementing = " + ch1);
    }
}
```

Run   CharDemo ×

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50169:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
Original Ch1 value = X
The value of Ch1 after incrementing = Y

Process finished with exit code 0
```

Java > CharDemo > main   8:1   CRLF   UTF-8   4 spaces

```java
public class BoolTest {
    public static void main(String[] args) {
        boolean b;

        b=false;
        System.out.println("The value of b is " + b);

        b=true;
        System.out.println("The value of b is " + b);

        if(b) System.out.println("This line will be executed.");

        b=false;
        if(b) System.out.println("This line will not be executed.");

        // Outcome of a relational operator is a boolean value.

        System.out.println("10 < 9 is " + (10 < 9));
    }
}
```

Run   BoolTest ×

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50215:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
The value of b is false
The value of b is true
This line will be executed.
10 < 9 is false

Process finished with exit code 0
```

```java
public class DynInit {
    public static void main(String[] args) {
        double a=3.0, b=4.0;

        // C is initialised dynamically.
        double c = Math.sqrt(a*a + b*b);

        System.out.println("Hypotenuse(c) value is " + c);
    }
}
```

Run   DynInit

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50240:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
Hypotenuse(c) value is 5.0

Process finished with exit code 0
```

```java
public class Scope {
    public static void main(String[] args) {
        int x; // Known to all code within main
        x = 10; // Initalizing x=10


        if (x == 10) { // True
            int y = 20; // y is known to only the code within if block.

            System.out.println("The value of x and y are " + x + " " + y);
        }

//          y = 100; //Error! y is not known here

        //But still x is known here.
        System.out.println("The value of x is " + x);
    }
}
```

Run   Scope ×

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50278:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
The value of x and y are 10 20
The value of x is 10

Process finished with exit code 0
```

```java
public class Convertion {
    public static void main(String[] args) {
        byte b;
        int i = 257;
        double d = 323.142;

        System.out.println("\nConvertion of int to byte : ");
        b = (byte) i;
        System.out.println("i = " + i + ", b = " + b);

        System.out.println("\nConvertion of double to int : ");
        i = (int) d;
        System.out.println("d = " + d + ", i = " + i);

        System.out.println("\nConvertion of double to byte : ");
        b = (byte) d;
        System.out.println("d = " + d + ", b = " + b);
```

Run   Convertion ×

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50297:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e

Convertion of int to byte :
i = 257, b = 1

Convertion of double to int :
d = 323.142, i = 323

Convertion of double to byte :
d = 323.142, b = 67

Process finished with exit code 0
```

```java
public class Promote {
    public static void main(String[] args) {
        byte b = 42;
        char c = 'a';
        short s = 1024;
        int i = 50000;
        float f = 5.67f;
        double d = .1234;
        double result = (f*b) + (i/c) - (d*s);
        System.out.println((f*b) + " + " + (i/c) + " - " + (d*s));
        System.out.println("Result = " + result);
    }
}
```

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA 2024.1.4\lib\idea_rt.jar=50332:D:\IntelliJ IDEA 2024.1.4\bin" -Dfile.e
238.14 + 515 - 126.3616
Result = 626.7784146484375

Process finished with exit code 0
```