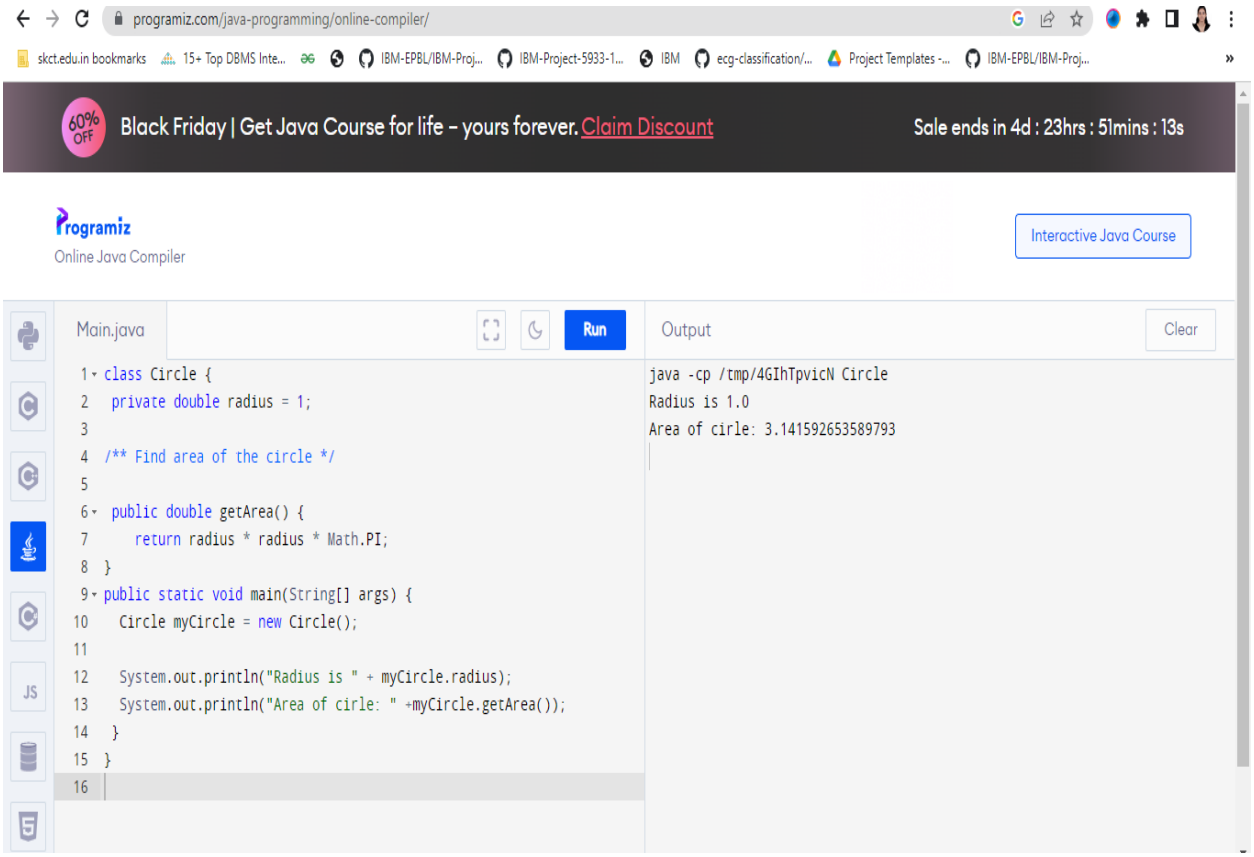
PRACTICE PROBLEMS ON ENCPSULATION

1. **In the following code, radius is declared as private in the class Circle, and myCircle is an instance of class Circle. Does the code cause any error problems? If so, explain why?**



No, the above code will not create any problem. The code will be compiled successfully. The output is: Radius is 1.0, Area of cirle: 3.141592653589793.

2. How to achieve encapsulation in Java?

```
public class EncapsulationTest{
 private String name;
 private String idNum;
 private int age;
```

```
public int getAge() {
   return age;
}
public String getName() {
   return name;
}
public String getIdNum() {
    return idNum;
}
public void setAge( int newAge) {
    age = newAge;
}
public void setName(String newName) {
    name = newName;
}
public void setIdNum( String newId) {
    idNum = newId;
  }
}
```

3. In this example program, we are creating a class Student and declare variables stdName, stdRollNo, and stdId as private. Look at the following source code to understand better..

```
package encapsulationTest;
public class Student
{
```

```
// Step 1: Declare variables private in the class.
  private String stdName; // private field.
  private int stdRollNo;
  private int stdId;

// Step 2: Apply public getter method for each private vairable in the class.
  public String getStdName()
  {
   return stdName;
  }
public int getStdRollNo()
{
  return stdRollNo;
}
public int getStdId()
{
  return stdId;
}
// Step 3: Apply public setter method for each private variable in the class.
public void setStdName(String name)
{
  stdName = name;
}
public void setStdRollNo(int rollNo)
{
  stdRollNo = rollNo;
}
```

```
public void setId(int id)
{
  stdId = id;
 }
}
public class EncapTest
{
public static void main(String[][] args)
{
// Step 4: Create the object of class Student by using new keyword.
 Student obj = new Student(); // Here, obj is reference variable of class Student and pointing to objects of class Student.

// Step 5: Call setter method and set the value of variables.
   obj.setStdName("Kiran");
   obj.setStdRollNo(4);
   obj.setStdId(12345);
// Step 6: Call getter method to read the value of variables and print it on console.
   System.out.println("Student's Name: " +obj.getStdName());
   System.out.println("Student's Roll no.: " +obj.getStdRollNo());
   System.out.println("Student's Id: " +obj.getStdId());
}
}
```