Q1

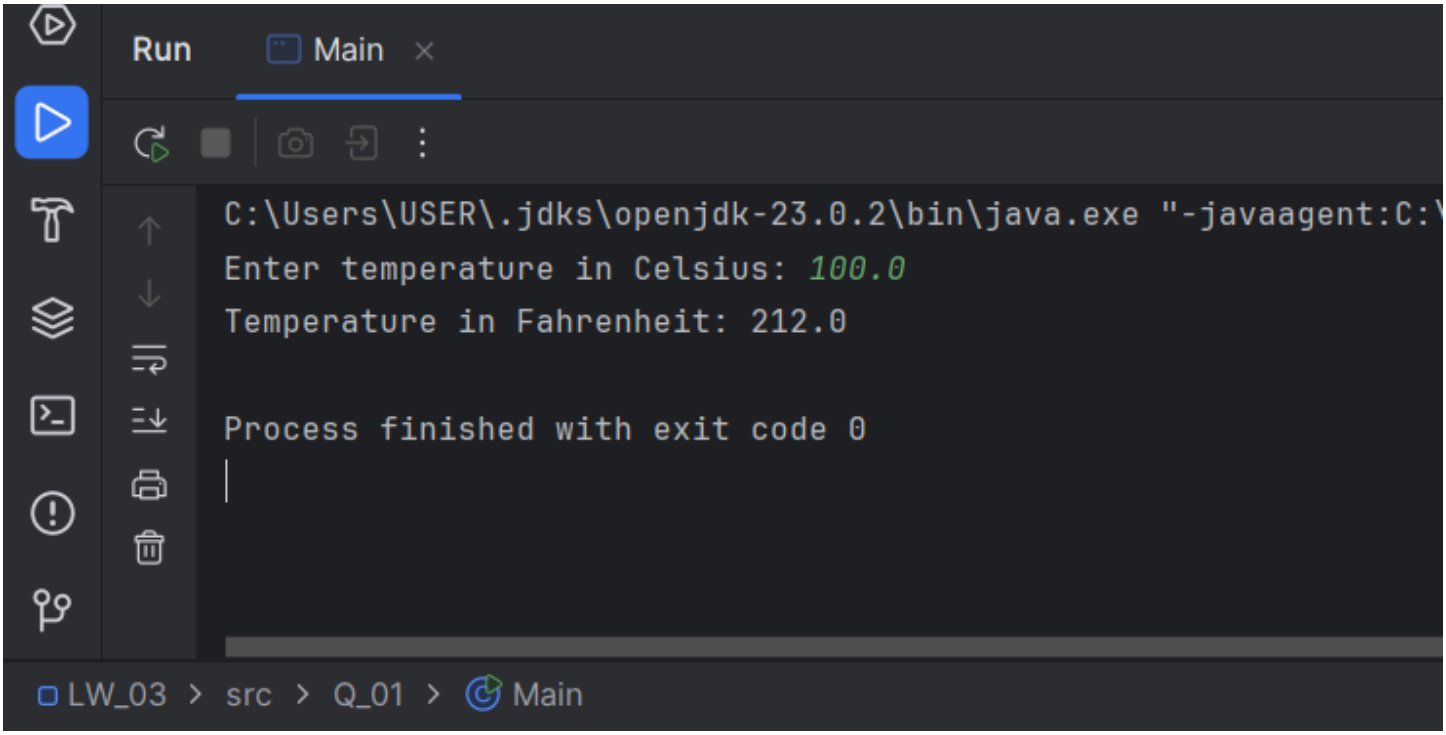
Code: Temperature.java

```
package Q_01;

public class Temperature {
   private double celsius;

   //NO-Arg Constructor
   public Temperature () {

      this.celsius = 0.0;
   }

   // Parameterized Constructor
   public Temperature(double celsius) {

      this.celsius = celsius;
   }

   //Getter for Celsius
   public double toCelsius() {

      return this.celsius;
   }

   //Getter for Fahrenheit
   public double toFahrenheit() {

      return this.celsius * 9 / 5 + 32;
   }

   // Setter for Celsius
   public void setCelsius(double celsius) {

      this.celsius = celsius;
   }

   // Setter for Fahrenheit
   public void setFahrenheit(double fahrenheit) {

      this.celsius = (fahrenheit - 32) * 5 / 9;
   }
}
```

Main.java

```
package Q_01;

import java.util.Scanner;

public class Main {
    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        System.out.print("Enter temperature in Celsius: ");
        double celsius = input.nextDouble();

        Temperature temp = new Temperature(celsius);
        temp.setCelsius(celsius);

        System.out.println("Temperature in Fahrenheit: " + temp.toFahrenheit());
    }
}
```

Output:

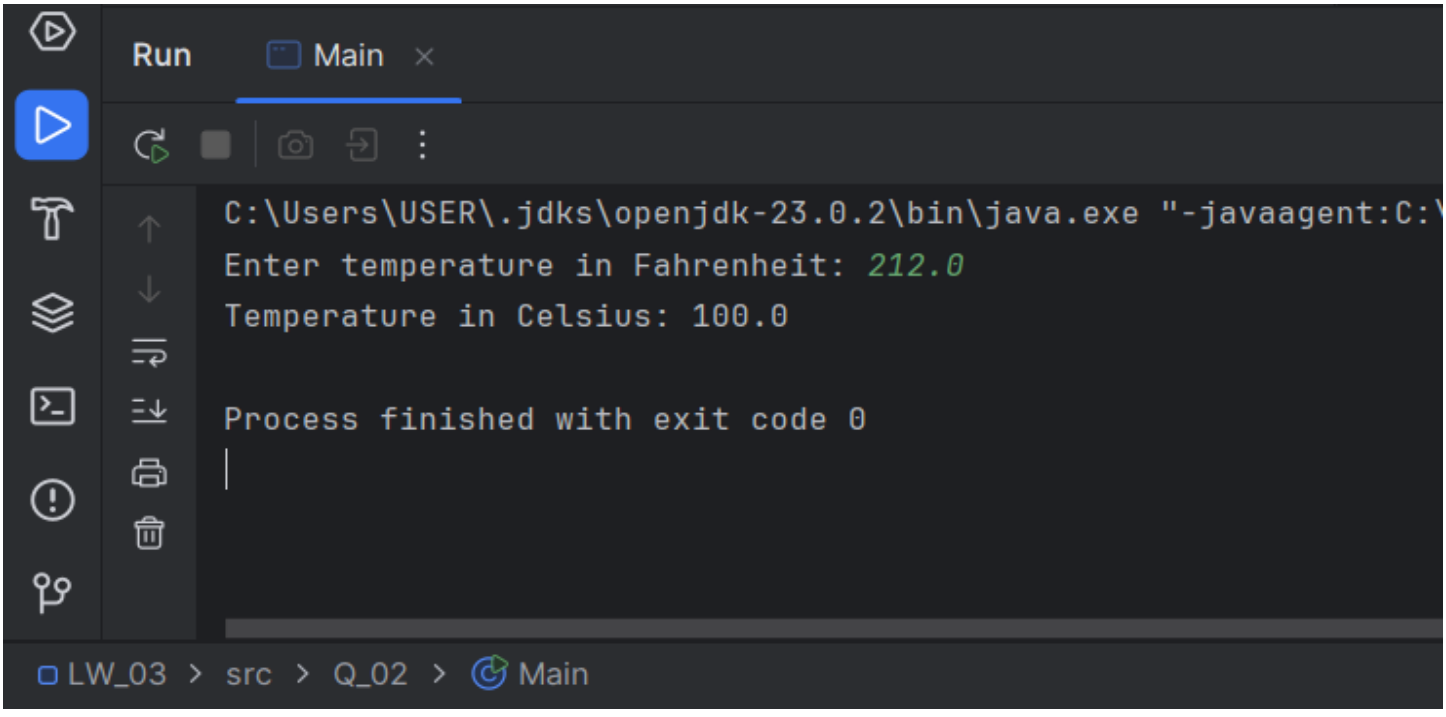


Q2

Code: Main.java

```
package Q_02;

import Q_01.Temperature;

import java.util.Scanner;

public class Main {
  public static void main(String[] args) {

    Scanner input = new Scanner(System.in);

    System.out.print("Enter temperature in Fahrenheit: ");
    double fahrenheit = input.nextDouble();

    Temperature temp = new Temperature();
    temp.setFahrenheit(fahrenheit);

    System.out.println("Temperature in Celsius: " + temp.toCelsius());
  }
}
```

Output:



Q3

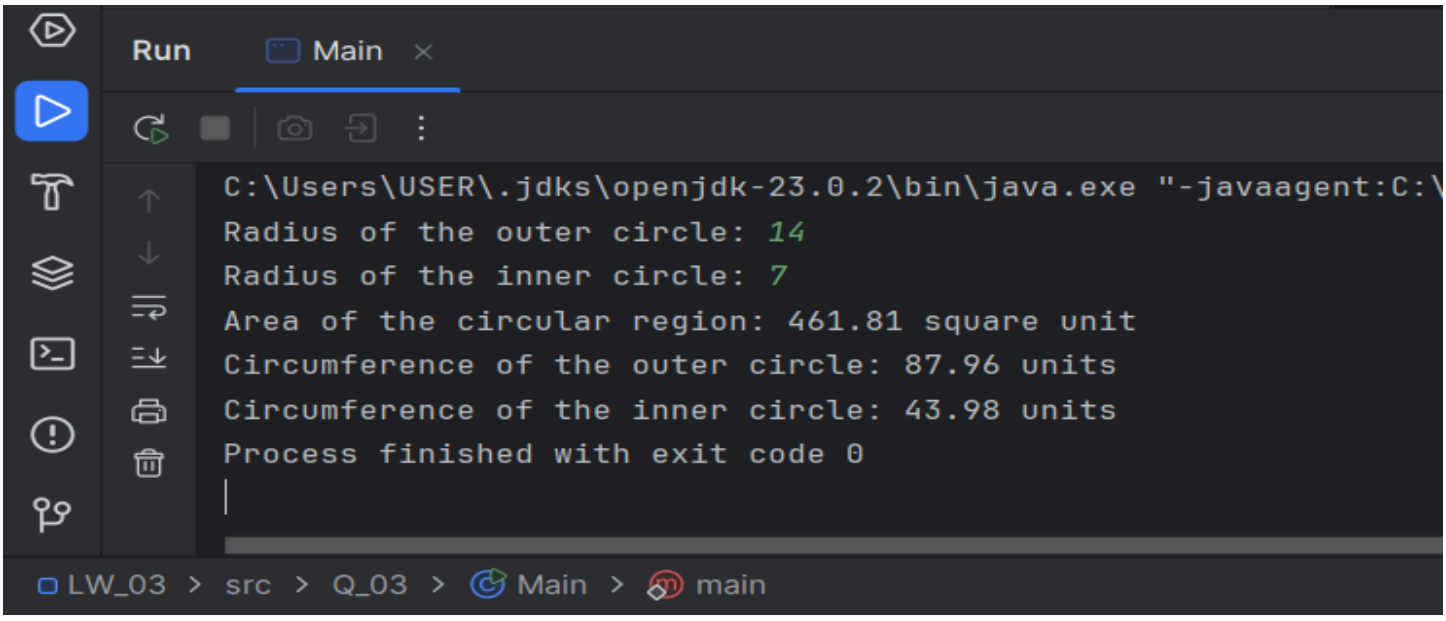
Code: Circle.java

```
package Q_03;

public class Circle {
   private double ri;
   private double ro;

   //NO-Arg Constructor
   public Circle() {

      this.ri = 0.0;
      this.ro = 0.0;
   }

   //setter for set the circle's radius
   public void setRadius(double ro, double ri) {

      this.ro = ro;
      this.ri = ri;
   }

   public double computeArea () {

      return ( (Math.PI * Math.pow(ro, 2)) - (Math.PI * Math.pow(ri, 2)) );
   }

   public void computeCircumference() {

      double C_ro = 2 * Math.PI * ro;
      double C_ri = 2 * Math.PI * ri;
      System.out.printf("Circumference of the outer circle: %.2f units\n", C_ro);
      System.out.printf("Circumference of the inner circle: %.2f units", C_ri);
   }
}
```

Main.java

```
package Q_03;

import java.util.Scanner;

public class Main {
   public static void main(String[] args) {

      Scanner input = new Scanner(System.in);

      System.out.print("Radius of the outer circle: ");
      double ro = input.nextDouble();

      System.out.print("Radius of the inner circle: ");
      double ri = input.nextDouble();

      Circle tempCircle = new Circle();

      tempCircle.setRadius(ro,ri);

      System.out.printf("Area of the circular region: %.2f square unit\n" ,tempCircle.computeArea());

      tempCircle.computeCircumference();

   }
}
```

Output:



Q4

Code: Owner.java

```
package Q_04;

public class Owner {

   private String ownerName;
   private String phoneNo;

   //Constructor: Initializes the data member
   public Owner() {

      ownerName = "Unknown";
      phoneNo = "Not Assigned";
   }

   public Owner (String ownerName, String phoneNo) {
      this.ownerName = ownerName;
      this.phoneNo = phoneNo;
   }

   //Assigns the name of this bicycle's owner
   public void setOwnerName(String ownerName) {

      this.ownerName = ownerName;
   }

   //Returns the name of this bicycle's owner
   public String getOwnerName() {

      return ownerName;
   }

   //Assigns the phone number of this bicycle's owner
   public void setPhoneNo(String phoneNo) {

      this.phoneNo = phoneNo;
   }

   //Returns the phone number of this bicycle's owner
   public String getPhoneNo() {

      return phoneNo;
   }
}
```

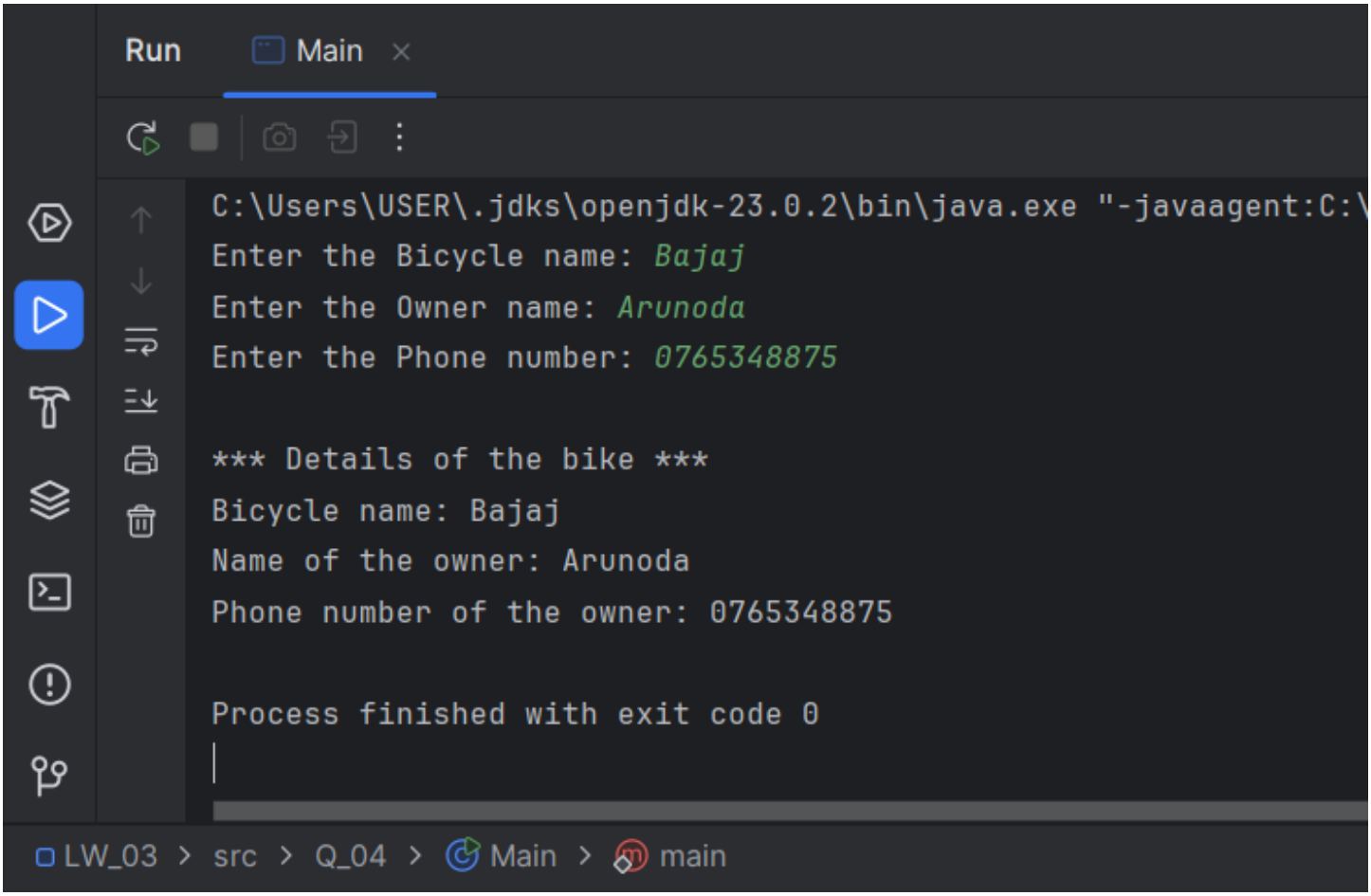
Bicycle.java

```
package Q_04;

public class Bicycle {

   private final Owner owner;

   public Bicycle(String ownerName, String phoneNo) {

      owner = new Owner(ownerName,phoneNo);

   }

   //Assigns the name of this bicycle's owner
   public void set_OwnerName(String ownerName) {

      owner.setOwnerName(ownerName);
   }


   //Returns the name of this bicycle's owner
   public String get_OwnerName() {

      return owner.getOwnerName();
   }


   //Assigns the phone number of this bicycle's owner
   public void set_PhoneNo(String phoneNo) {

      this.owner.setPhoneNo(phoneNo);
   }


   //Returns the phone number of this bicycle's owner
   public String get_PhoneNo() {

      return owner.getPhoneNo();
   }
}
```

Main.java

```
package Q_04;

import java.util.Scanner;

public class Main {
   public static void main(String[] args) {

      Scanner input = new Scanner(System.in);

      System.out.print("Enter the Bicycle name: ");
      String B_name = input.next();

      System.out.print("Enter the Owner name: ");
      String ownerName = input.next();

      System.out.print("Enter the Phone number: ");
      String phoneNo = input.next();

      Bicycle bikes = new Bicycle(ownerName, phoneNo);
      bikes.set_OwnerName(ownerName);
      bikes.set_PhoneNo(phoneNo);

      System.out.println("\n*** Details of the bike ***");
      System.out.println("Bicycle name: " + B_name);
      System.out.println("Name of the owner: " + bikes.get_OwnerName());
      System.out.println("Phone number of the owner: " + bikes.get_PhoneNo());

   }
}
```

Output:


Run
Main
C:\Users\USER\.jdks\openjdk-23.0.2\bin\java.exe "-javaagent:C:\
Enter the Bicycle name: Bajaj
Enter the Owner name: Arunoda
Enter the Phone number: 0765348875
*** Details of the bike ***
Bicycle name: Bajaj
Name of the owner: Arunoda
Phone number of the owner: 0765348875
Process finished with exit code 0
LW_03 > src > Q_04 > Main > main

Q5

Code: Course.java

```
package Q_05;

public class Course {
   private String courseName;
   private String courseCode;
   private Lecturer lecturer;

   // Constructor
   public Course(String courseName, String courseCode) {
      this.courseName = courseName;
      this.courseCode = courseCode;
   }

   // Getters for Course Name
   public String getCourseName() {

      return courseName;
   }

   // Setters for Course Name
   public void setCourseName(String courseName) {

      this.courseName = courseName;
   }

   // Getters for Course Code
   public String getCourseCode() {

      return courseCode;
   }

   // Setters for Course Code
   public void setCourseCode(String courseCode) {

      this.courseCode = courseCode;
   }

   // Setters for Lecturer
   public void setLecturer(Lecturer lecturer) {

      this.lecturer = lecturer;
   }

   // Getters for Lecturer
   public Lecturer getLecturer() {

      return lecturer;
   }
}
```

Lecturer.java

```
package Q_05;

public class Lecturer {
   private String lecturerName;
   private String courseTeaching;

   // Constructor
   public Lecturer(String lecturerName, String courseTeaching) {
      this.lecturerName = lecturerName;
      this.courseTeaching = courseTeaching;
   }

   // Setter for Lecturer Name
   public void setLecturerName(String lecturerName) {

      this.lecturerName = lecturerName;
   }

   // Getter for Lecturer Name
   public String getLecturerName() {

      return this.lecturerName;
   }

   // Setter for Course Teaching
   public void setCourseTeaching(String courseTeaching) {

      this.courseTeaching = courseTeaching;
   }

   // Getter for Course Teaching
   public String getCourseTeaching() {

      return courseTeaching;
   }
}
```

Student.java

```
package Q_05;

public class Student {
   private String studentName;
   private String degreeName;
   private String courseFollowing;

   // Constructor
   public Student(String studentName, String degreeName, String courseFollowing) {
      this.studentName = studentName;
      this.degreeName = degreeName;
      this.courseFollowing = courseFollowing;
   }

   // Setter for Student Name
   public void setStudentName(String studentName) {

      this.studentName = studentName;
   }

   // Getter for Student Name
   public String getStudentName() {

      return studentName;
   }

   // Setter for Degree Name
   public void setDegreeName(String degreeName) {

      this.degreeName = degreeName;
   }

   // Getter for Degree Name
   public String getDegreeName() {

      return degreeName;
   }

   // Setter for Course Following
   public void setCourseFollowing(String courseFollowing) {

      this.courseFollowing = courseFollowing;
   }

   // Getter for Course Following
   public String getCourseFollowing() {

      return courseFollowing;
   }
}
```

Main.java

```
package Q_05;

import java.util.Scanner;

public class Main {
   public static void main(String[] args) {

      // Course information
      Scanner courseInfo = new Scanner(System.in);

      System.out.print("Name of the Course: ");
      String courseName = courseInfo.next();

      System.out.print("Code of the Course: ");
      String courseCode = courseInfo.next();

      Course course = new Course(courseName, courseCode);
      course.setCourseName(courseName);
      course.setCourseCode(courseCode);

      // Lecturer information
      Scanner lecturerInfo = new Scanner(System.in);

      System.out.print("Name of the Lecturer: ");
      String lecturerName = lecturerInfo.next();

      System.out.print("Teaching Course: ");
      String courseTeaching = lecturerInfo.next();

      Lecturer prof = new Lecturer(lecturerName, courseTeaching);
      prof.setLecturerName(lecturerName);
      prof.setCourseTeaching(courseTeaching);
      course.setLecturer(prof);

      // Student information
      Scanner studentInfo = new Scanner(System.in);

      System.out.print("Name of the Student: ");
      String studentName = studentInfo.next();

      System.out.print("Name of the Degree: ");
      String degreeName = studentInfo.next();

      System.out.print("Course Following: ");
      String courseFollowing = studentInfo.next();

      Student std = new Student(studentName, degreeName, courseFollowing);
      std.setStudentName(studentName);
      std.setDegreeName(degreeName);
      std.setCourseFollowing(courseFollowing);
```

```
        // Display all information
        System.out.println("\n");
        System.out.println(" ----- LECTURER INFORMATION -----");
        System.out.println("* Lecturer Name: " + prof.getLecturerName());
        System.out.println("* Teaching Course: " + prof.getCourseTeaching());

        System.out.println("\n");
        System.out.println(" ----- COURSE INFORMATION -----");
        System.out.println("* Course Name: " + course.getCourseName());
        System.out.println("* Course Code: " + course.getCourseCode());
        System.out.println("* Assigned Lecturer: " + course.getLecturer().getLecturerName());

        System.out.println("\n");
        System.out.println(" ----- STUDENT INFORMATION -----");
        System.out.println("* Student Name: " + std.getStudentName());
        System.out.println("* Degree Name: " + std.getDegreeName());
        System.out.println("* Course Following: " + std.getCourseFollowing());
    }
}
```

Output: