CT_2021_075

Q1.

```
package Q_1;
import java.util.Scanner;
public class Q1 {
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.println("Enter temperature in celsius");
        double celsiusInput=input.nextDouble();
        Temperature temperature=new Temperature(celsiusInput);
        System.out.println("Equivalent temperature in
fahrenheit:"+temperature.toFahrenheit());
        System.out.println("Enter temperature in F to convert back to c");
        double fahrenheitInput=input.nextDouble();
        temperature.setFahrenheit(fahrenheitInput);
        System.out.println("convert back to c:"+temperature.toCelsius());
        input.close();
    }
    }
```

```
package Q_1;
public class Temperature {
    private double celsius;
    public Temperature(){
        celsius=0.0;
    }
    public Temperature(double celsius){
        this.celsius=celsius;
    }
    public double toFahrenheit(){
        return (celsius*9/5)+32;
    }
    public double toCelsius(){
        return celsius;
    }
    public void setCelsius(double celsius){
        this.celsius=celsius;
    }
    public void setFahrenheit(double fahrenheit){
        this.celsius=(fahrenheit-32)*5/9;
```

```
    }
}
```

```
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Program Fil
Enter temperature in celsius

4678
Equivalent temperature in fahrenheit:8452.4
Enter temperature in F to convert back to c
500
convert back to c:260.0
```

Q.2

```
package Q_2;

import java.util.Scanner;

public class Q2 {
    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("Equivalent temperature in Celsius: " +
temp.getCelsius());
        input.close();
    }
}
```

```java
package Q_2;

public class Temperature {
    private double celsius;
    public void setFahrenheit(double fahrenheit) {
        this.celsius = (fahrenheit - 32) * 5 / 9;
    }
    public double getCelsius() {
        return this.celsius;
    }
}
```

```
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Program Files\JetBr
Enter temperature in Fahrenheit: 357
Equivalent temperature in Celsius: 180.55555555555554

Process finished with exit code 0
```

Q.3

```java
package Q_3;
import java.util.Scanner;
public class Q3 {
    public static void main(String[] args) {

                Scanner input=new Scanner(System.in);
                System.out.println("Enter the inner radius of the circle:");
                double innerRadius=input.nextDouble();
                System.out.println("Enter the outer radius of the circle:");
                double outerRadius=input.nextDouble();
                if(innerRadius>outerRadius) {
                    System.out.println("Inner radius connot be greater than
outer radius. ");
                }
                else {
                    Circle outerCircle=new Circle(outerRadius);
                    Circle innerCircle=new Circle(innerRadius);
                    double Area=outerCircle.computeArea()-
innerCircle.computeArea();
                    System.out.println("The area is: "+Area);
                }
            }
        }
```

```java
package Q_3;

public class Circle {
    private double radius;
    public Circle(double radius){
        this.radius=radius;
    }
    public void setRadius(double radius) {
        this.radius = radius;
    }
    public double computeArea(){
        return Math.PI*radius*radius;
    }
    public double computeCircumference(){
        return 2*Math.PI*radius;
    }
}
```

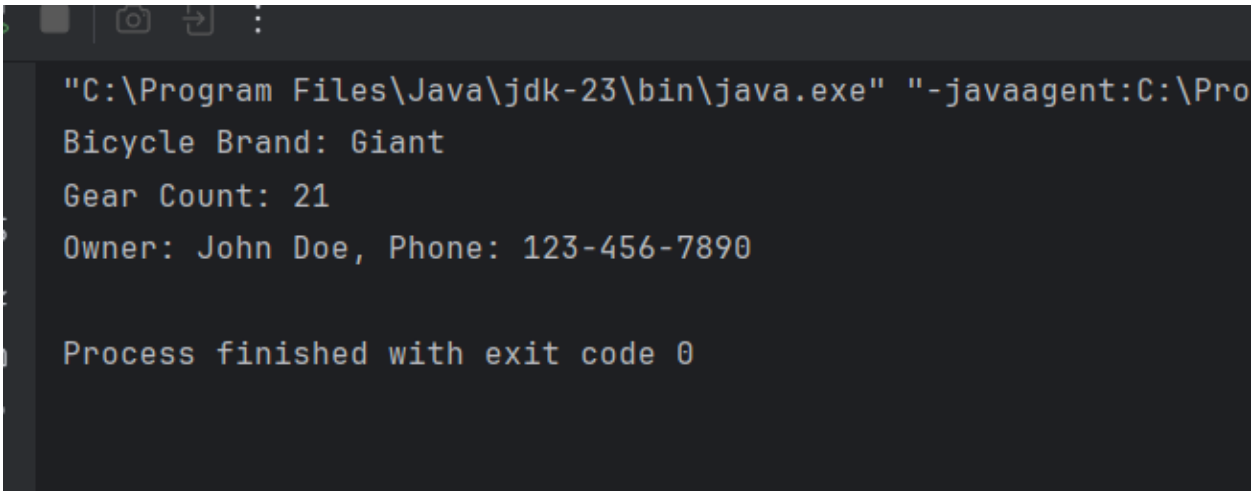
```
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Program F
Enter the inner radius of the circle:
20
Enter the outer radius of the circle:
30
The area is: 1570.7963267948965

Process finished with exit code 0
```

Q.4

```
package Q_4;

public class Q4 {
    public static void main(String[] args) {
        Owner owner = new Owner("John Doe", "123-456-7890");
        Bicycle bike = new Bicycle("Giant", 21, owner);

        bike.displayDetails();
    }
}
```

```
package Q_4;

        public class Bicycle { private String brand;
            private int gearCount;
            private Owner owner;
            public Bicycle(String brand, int gearCount, Owner owner) {
                this.brand = brand;
                this.gearCount = gearCount;
                this.owner = owner;
            }
            // Getters
            public String getBrand() {
                return brand;
            }
            public int getGearCount() {
                return gearCount;
            }
            public Owner getOwner() {
                return owner;
            }
            // Display bicycle details
            public void displayDetails() {
                System.out.println("Bicycle Brand: " + brand);
                System.out.println("Gear Count: " + gearCount);
                System.out.println(owner);
            }
        }

        e.displayDetails();
    }
}
```

```java
Owner {private String ownerName;
    private String phoneNo;
    public Owner(String ownerName, String phoneNo) {
        this.ownerName = ownerName;
        this.phoneNo = phoneNo;
    }
    public String getOwnerName() {
        return ownerName;
    }
    public String getPhoneNo() {
        return phoneNo;
    }
    @Override
    public String toString() {
        return "Owner: " + ownerName + ", Phone: " + phoneNo;
    }
}
```



Q.5

```
package Q_5;

public class Q5 {
    public static void main(String[] args) {
        Lecturer lecturer = new Lecturer("Mr.Kesavan", "Object-Oriented
Programming");
        Course course = new Course("Object-Oriented Programming", "CTEC
22043", lecturer);

        Student student = new Student("Insifa", "Information Communication
Technology", "CTEC 22043");
        System.out.println("Course: " + course.getCourseName() + " (" +
course.getCourseCode() + ")");
        System.out.println("Lecturer: " +
course.getLecturer().getLecturerName());
        System.out.println("Student: " + student.getStudentName() + " - " +
student.getDegreeName());
    }
}
```

```
package Q_5;

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

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

    public String getLecturerName() {
        return lecturerName;
    }

    public void setLecturerName(String lecturerName) {
        this.lecturerName = lecturerName;
    }

    public String getCourseTeaching() {
        return courseTeaching;
    }

}
```

```java
package Q_5;

public class Course { private String courseName;
    private String courseCode;
    private Lecturer lecturer; // Lecturer object
    public Course(String courseName, String courseCode, Lecturer lecturer) {
        this.courseName = courseName;
        this.courseCode = courseCode;
        this.lecturer = lecturer;
    }
    public String getCourseName() {
        return courseName;
    }
    public void setCourseName(String courseName) {
        this.courseName = courseName;
    }
    public String getCourseCode() {
        return courseCode;
    }
    public void setCourseCode(String courseCode) {
        this.courseCode = courseCode;
    }
    public Lecturer getLecturer() {
        return lecturer;
    }
    public void setLecturer(Lecturer lecturer) {
        this.lecturer = lecturer;
    }
}
```

```java
package Q_5;

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;
    }
    public String getStudentName() {
        return studentName;
    }
    public void setStudentName(String studentName) {
        this.studentName = studentName;
    }
    public String getDegreeName() {
        return degreeName;
    }
    public void setDegreeName(String degreeName) {
        this.degreeName = degreeName;
```

```
    }
    public String getCourseFollowing() {
        return courseFollowing;
    }
    public void setCourseFollowing(String courseFollowing) {
        this.courseFollowing = courseFollowing;
    }
}
```