Q1.

Code:

Main.java

***package Q\_01;  
  
import java.util.Scanner;  
  
public class Main {  
 public static void main(String[] args) {  
  
 //scanner class object to get the input from the user  
 Scanner scanner = new Scanner(System.in);  
 //creating object of Temperature class  
 Temperature temperature = new Temperature();  
  
 //taking input from the user  
 System.out.print("Enter the temperature in Celsius: ");  
 double celsius = scanner.nextDouble();  
  
 //setting the value of celsius  
 temperature.setCelsius(celsius);  
 //displaying the temperature in Fahrenheit  
 System.out.print("Temperature in Fahrenheit: " + temperature.toFahrenheit());  
  
 }  
}***

Temperature.java

***package Q\_01;  
  
public class Temperature {  
 private double celsius;  
  
 //no argument constructor  
 public Temperature() {  
 this.celsius = 0;  
 }  
  
 //parameterized constructor  
 public Temperature(double celsius) {  
 this.celsius = celsius;  
 }  
  
 //getter method to get the value of celsius  
 public double toCelsius() {  
 return celsius;  
 }  
  
 //getter method to get the value of fahrenheit  
 public double toFahrenheit() {  
 return (celsius \* 9 / 5 + 32);  
 }  
  
 //setter method to set the value of celsius  
 public void setCelsius(double celsius) {  
 this.celsius = celsius;  
 }  
  
 //setter method to set the value of fahrenheit  
 public void setFahrenheit(double fahrenheit) {  
 this.celsius = (fahrenheit - 32) \* 5 / 9;  
 }  
}***

Output:

A screen shot of a computer

AI-generated content may be incorrect.

Q2.

Code:

Main.java

***package Q\_02;  
  
import java.util.Scanner;  
  
public class Main {  
 public static void main(String[] args) {  
 //scanner class object to get the input from the user  
 Scanner scanner = new Scanner(System.in);  
 //creating object of Temperature class  
 Temperature temperature = new Temperature();  
  
 //taking input from the user  
 System.out.print("Enter the temperature in Fahrenheit: ");  
 double fahrenheit = scanner.nextDouble();  
  
 //setting the value of fahrenheit  
 temperature.setFahrenheit(fahrenheit);  
 //displaying the temperature in Celsius  
 System.out.print("Temperature in Celsius: " + temperature.toCelsius());  
 }  
}***

Temperature.java

***package Q\_02;  
  
public class Temperature {  
 private double celsius;  
  
 //no argument constructor  
 public Temperature() {  
 this.celsius = 0;  
 }  
  
 //parameterized constructor  
 public Temperature(double celsius) {  
 this.celsius = celsius;  
 }  
  
 //getter method to get the value of celsius  
 public double toCelsius() {  
 return celsius;  
 }  
  
 //getter method to get the value of fahrenheit  
 public double toFahrenheit() {  
 return (celsius \* 9 / 5 + 32);  
 }  
  
 //setter method to set the value of celsius  
 public void setCelsius(double celsius) {  
 this.celsius = celsius;  
 }  
  
 //setter method to set the value of fahrenheit  
 public void setFahrenheit(double fahrenheit) {  
 this.celsius = (fahrenheit - 32) \* 5 / 9;  
 }  
}***

Output:

A screenshot of a computer

AI-generated content may be incorrect.

Q3.

Code:

Main.java

***package Q\_03;  
  
import java.text.DecimalFormat;  
import java.util.Scanner;  
  
public class Main {  
 public static void main(String[] args) {  
 double innerRadius;  
 double outerRadius;  
  
 //scanner object to take input from the user  
 Scanner scanner = new Scanner(System.in);  
 //DecimalFormat object to format the output  
 DecimalFormat df = new DecimalFormat("#.##");  
  
 //taking inner radius value from the user  
 System.out.print("Enter a value for the inner circle radius: ");  
 innerRadius = scanner.nextDouble();  
  
 //taking uter radius value from the user  
 System.out.print("Enter a value for the outer circle radius: ");  
 outerRadius = scanner.nextDouble();  
  
 //creating objects of Circle class  
 Circle innerCircle = new Circle(innerRadius);  
 Circle outerCircle = new Circle(outerRadius);  
  
 //calculating the shaded area and circumference  
 double area = outerCircle.computeArea()-innerCircle.computeArea();  
 double circumference = outerCircle.computeCircumference()-innerCircle.computeCircumference();  
  
 //printing the shaded area and circumference  
 System.out.print("The shaded area of the circle is: "+ df.format(area)+"\nThe shaded circumference of the circle is: "+df.format(circumference));  
 }  
}***

Circle.java

***package Q\_03;  
  
public class Circle {  
 private double radius;  
  
 //constructor to initialize the radius  
 public Circle(double radius) {  
 this.radius = radius;  
 }  
  
 //getter method to get the radius  
 public void setRadius(double radius) {  
 this.radius = radius;  
 }  
  
 //method to compute the area of the circle  
 public double computeArea(){  
 return (Math.PI \* radius \* radius);  
 }  
  
 //method to compute the circumference of the circle  
 public double computeCircumference(){  
 return (2 \* Math.PI \* radius);  
 }  
}***

Output:

A screen shot of a computer

AI-generated content may be incorrect.

Q4.

Code:

Main.java

***package Q\_04;  
  
public class Main {  
 public static void main(String[] args) {  
 // Create an owner object  
 Owner owner = new Owner("Isala", "0712345678");  
 // Create a bicycle object  
 Bicycle tomahawk = new Bicycle(owner);  
  
 // Print the owner name of the bicycle  
 System.out.println(tomahawk.getBicycleOwner().getOwnerName());  
 }  
}***

Bicycle.java

***package Q\_04;  
  
public class Bicycle {  
 Owner bicycleOwner;  
  
 // Constructor for the bicycle class  
 public Bicycle(Owner bicycleOwner) {  
 this.bicycleOwner = bicycleOwner;  
 }  
  
 // Getter and setter for the bicycle owner  
 public Owner getBicycleOwner() {  
 return bicycleOwner;  
 }  
  
 public void setBicycleOwner(Owner bicycleOwner) {  
 this.bicycleOwner = bicycleOwner;  
 }  
}***

Owner.java

***package Q\_04;  
  
public class Owner {  
 private String ownerName;  
 private String phoneNo;  
  
 // Constructor for the owner class  
 public Owner(String ownerName, String phoneNo) {  
 this.ownerName = ownerName;  
 this.phoneNo = phoneNo;  
 }  
  
 // Getter and setter for the owner name  
 public String getOwnerName() {  
 return ownerName;  
 }  
  
 public void setOwnerName(String ownerName) {  
 this.ownerName = ownerName;  
 }  
  
 // Getter and setter for the phone number  
 public String getPhoneNo() {  
 return phoneNo;  
 }  
  
 public void setPhoneNo(String phoneNo) {  
 this.phoneNo = phoneNo;  
 }  
}***

Output:

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Q5.

Code:

Main.java

***package Q\_05;  
  
public class Main {  
 public static void main(String[] args) {  
 //crating an object of Course class  
 Course oop = new Course();  
 //setting values to the object  
 oop.setCourseName("Object Oriented Programming");  
 oop.setCourseCode("CTEC22043");  
  
 //creating an object of Lecturer class  
 Lecturer kumar = new Lecturer();  
 //setting values to the object  
 kumar.setLecturerName("Kumar");  
 kumar.setCourseTeaching("Object Oriented Programming");  
  
 //creating an object of Student class  
 Student sanga = new Student();  
 //setting values to the object  
 sanga.setStudentName("Sanga");  
 sanga.setDegreeName("Information and Communication Technology");  
 sanga.setCourseFollowing("Object Oriented Programming");  
  
 //setting lecturerInCharge to the course  
 oop.setLecturerInCharge(kumar);  
  
 //displaying the student details  
 System.out.println("Student Details: ");  
 System.out.println("Name: "+sanga.getStudentName());  
 System.out.println("Course Following: "+sanga.getCourseFollowing());  
 System.out.println("Degree Name: "+sanga.getDegreeName()+"\n");  
  
 //displaying the course details  
 System.out.println("Course Details: ");  
 System.out.println("Course Name: "+oop.getCourseName());  
 System.out.println("Course Code: "+oop.getCourseCode());  
 System.out.println("Lecturer In Charge: "+oop.getLecturerInCharge().getLecturerName()+"\n");  
  
 //displaying the lecturer details  
 System.out.println("Lecturer Details: ");  
 System.out.println("Lecturer Name: "+kumar.getLecturerName());  
 System.out.println("Courses Teaching: "+kumar.getCourseTeaching()+"\n");  
 }  
}***

***//displaying the lecturer details  
 System.out.println("Lecturer Details: ");  
 System.out.println("Lecturer Name: "+kumar.getLecturerName());  
 System.out.println("Courses Teaching: "+kumar.getCourseTeaching()+"\n");  
 }  
}***

Course.java

***package Q\_05;  
  
public class Course {  
  
 private String courseName;  
 private String courseCode;  
 private Lecturer lecturerInCharge;  
  
 //getter method for courseName  
 public String getCourseName() {  
 return courseName;  
 }  
  
 //setter method for courseName  
 public void setCourseName(String courseName) {  
 this.courseName = courseName;  
 }  
  
 //getter method for courseCode  
 public String getCourseCode() {  
 return courseCode;  
 }  
  
 //setter method for courseCode  
 public void setCourseCode(String courseCode) {  
 this.courseCode = courseCode;  
 }  
  
 //getter method for lecturerInCharge  
 public Lecturer getLecturerInCharge() {  
 return lecturerInCharge;  
 }  
  
 //setter method for lecturerInCharge  
 public void setLecturerInCharge(Lecturer lecturerInCharge) {  
 this.lecturerInCharge = lecturerInCharge;  
 }  
}***

Lecturer.java

***package Q\_05;  
  
public class Lecturer {  
  
 private String lecturerName;  
 private String courseTeaching;  
  
 //getter method for lecturerName  
 public String getLecturerName() {  
 return lecturerName;  
 }  
  
 //setter method for lecturerName  
 public void setLecturerName(String lecturerName) {  
 this.lecturerName = lecturerName;  
 }  
  
 //getter method for courseTeaching  
 public String getCourseTeaching() {  
 return courseTeaching;  
 }  
  
 //setter method for courseTeaching  
 public void setCourseTeaching(String courseTeaching) {  
 this.courseTeaching = courseTeaching;  
 }  
}***

Student.java

***package Q\_05;  
  
public class Student {  
 private String studentName;  
 private String degreeName;  
 private String courseFollowing;  
  
 //getter method for studentName  
 public String getStudentName() {  
 return studentName;  
 }  
  
 //setter method for studentName  
 public void setStudentName(String studentName) {  
 this.studentName = studentName;  
 }  
  
 //getter method for degreeName  
 public String getDegreeName() {  
 return degreeName;  
 }  
  
 //setter method for degreeName  
 public void setDegreeName(String degreeName) {  
 this.degreeName = degreeName;  
 }  
  
 //getter method for courseFollowing  
 public String getCourseFollowing() {  
 return courseFollowing;  
 }  
  
 //setter method for courseFollowing  
 public void setCourseFollowing(String courseFollowing) {  
 this.courseFollowing = courseFollowing;  
 }  
}***

Output:

