CT/2021/001 (Nirmal B.A.C.C)

Q\_01

package Q\_01;  
  
 import java.util.Scanner;  
  
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 to return temperature in Fahrenheit  
 public double toFahrenheit() {  
 return (celsius \* 9 / 5) + 32;  
 }  
  
 // Getter to return temperature in Celsius  
 public double toCelsius() {  
 return celsius;  
 }  
  
 // Setter to assign temperature using Celsius  
 public void setCelsius(double celsius) {  
 this.celsius = celsius;  
 }  
  
 // Setter to assign temperature using Fahrenheit  
 public void setFahrenheit(double fahrenheit) {  
 this.celsius = (fahrenheit - 32) \* 5 / 9;  
 }  
  
 public static void main(String[] args) {  
 Scanner scanner = new Scanner(System.*in*);  
  
 // Get temperature in Celsius from user  
 System.*out*.print("Enter temperature in Celsius: ");  
 double inputCelsius = scanner.nextDouble();  
  
 // Create Temperature object  
 Temperature temp = new Temperature(inputCelsius);  
  
 // Convert and display Fahrenheit equivalent  
 System.*out*.println("Equivalent temperature in Fahrenheit: " + temp.toFahrenheit());  
  
 scanner.close();  
 }  
 }

A screenshot of a computer program

AI-generated content may be incorrect.

Q\_02

package Q\_02;  
  
import java.util.Scanner;  
  
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 to return temperature in Fahrenheit  
 public double toFahrenheit() {  
 return (celsius \* 9 / 5) + 32;  
 }  
  
 // Getter to return temperature in Celsius  
 public double toCelsius() {  
 return celsius;  
 }  
  
 // Setter to assign temperature using Celsius  
 public void setCelsius(double celsius) {  
 this.celsius = celsius;  
 }  
  
 // Setter to assign temperature using Fahrenheit  
 public void setFahrenheit(double fahrenheit) {  
 this.celsius = (fahrenheit - 32) \* 5 / 9;  
 }  
  
 public static void main(String[] args) {  
 Scanner scanner = new Scanner(System.*in*);  
  
 // Get temperature in Fahrenheit from user  
 System.*out*.print("Enter temperature in Fahrenheit: ");  
 double inputFahrenheit = scanner.nextDouble();  
  
 // Create Temperature object  
 Temperature temp = new Temperature();  
  
 // Set Fahrenheit value and convert to Celsius  
 temp.setFahrenheit(inputFahrenheit);  
  
 // Display equivalent Celsius temperature  
 System.*out*.println("Equivalent temperature in Celsius: " + temp.toCelsius());  
  
 scanner.close();  
 }  
}

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Q\_03

package Q\_03;  
  
import java.util.Scanner;  
  
public class Main {  
 public static void main(String[] args) {  
 Scanner scanner = new Scanner(System.*in*);  
  
 // Get input for outer circle radius  
 System.*out*.print("Enter the radius of the outer circle (ro): ");  
 double ro = scanner.nextDouble();  
  
 // Get input for inner circle radius  
 System.*out*.print("Enter the radius of the inner circle (ri): ");  
 double ri = scanner.nextDouble();  
  
 // Ensure ro is greater than ri  
 if (ro <= ri) {  
 System.*out*.println("Error: Outer radius must be greater than inner radius.");  
 } else {  
 // Create Circle objects for outer and inner circles  
 Circle outerCircle = new Circle(ro);  
 Circle innerCircle = new Circle(ri);  
  
 // Compute the area of the circular region  
 double shadedArea = outerCircle.computeArea() - innerCircle.computeArea();  
  
 // Display the result  
 System.*out*.println("The area of the circular region is: " + shadedArea);  
 }  
  
 scanner.close();  
 }  
}

package Q\_03;  
  
  
public class Circle {  
 private double radius;  
  
 // No-Arg Constructor  
 public Circle() {  
 this.radius = 0.0;  
 }  
  
 // Parameterized Constructor  
 public Circle(double radius) {  
 this.radius = radius;  
 }  
  
 // Setter method for 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;  
 }  
  
 // Getter method to return radius  
 public double getRadius() {  
 return radius;  
 }  
}

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Q\_04

package Q\_04;  
  
// Main.java  
public class Main {  
 public static void main(String[] args) {  
 // Using the original Bicycle class  
 Bicycle oldBike = new Bicycle("Chalaka Chandika");  
 System.*out*.println("Bicycle Owner: " + oldBike.getOwner());  
  
 System.*out*.println();  
  
 // Using the new BicycleNew class with Owner object  
 Owner owner = new Owner("Chalaka Chandika ", "077 6956956");  
 BicycleNew newBike = new BicycleNew(owner);  
  
 // Displaying details in the Main class  
 System.*out*.println("Bicycle belongs to:");  
 System.*out*.println("Owner Name: " + newBike.getOwner().getOwnerName());  
 System.*out*.println("Phone No: " + newBike.getOwner().getPhoneNo());  
 }  
}

package Q\_04;  
  
// BicycleNew.java  
public class BicycleNew {  
 private Owner owner;  
  
 public BicycleNew(Owner owner) {  
 this.owner = owner;  
 }  
  
 public Owner getOwner() {  
 return owner;  
 }  
}

package Q\_04;  
  
  
// Bicycle.java  
public class Bicycle {  
 private String owner;  
  
 public Bicycle(String owner) {  
 this.owner = owner;  
 }  
  
 public String getOwner() {  
 return owner;  
 }  
}

package Q\_04;  
  
// Owner.java  
public class 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;  
 }  
}

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Q\_05

package Q\_05;  
  
public class Main {  
 public static void main(String[] args) {  
 // Create Lecturer object  
 Lecturer lecturer = new Lecturer("Kesavan ", "Object-Oriented Programming");  
  
 // Create Course object  
 Course course = new Course("Object-Oriented Programming", "CTEC22043", lecturer);  
  
 // Create Student object  
 Student student = new Student("Chalaka ", "BICT", "Object-Oriented Programming");  
  
 // Display course and student details  
 System.*out*.println("---- Course Details ----");  
 course.displayCourseInfo();  
 System.*out*.println("\n---- Student Details ----");  
 student.displayStudentInfo();  
 }  
}

package Q\_05;  
  
public class Course {  
 private String courseName;  
 private String courseCode;  
 private Lecturer lecturer;  
  
 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;  
 }  
  
 public void displayCourseInfo() {  
 System.*out*.println("Course Name: " + courseName);  
 System.*out*.println("Course Code: " + courseCode);  
 System.*out*.println("Lecturer: " + lecturer.getLecturerName());  
 }  
}

package Q\_05;  
  
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;  
 }  
  
 public void setCourseTeaching(String courseTeaching) {  
 this.courseTeaching = courseTeaching;  
 }  
}

package Q\_05;  
public class Student {  
 private String studentName;  
 private String degreeName;  
 private String courseFollowing;  
  
 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;  
 }  
  
 public void displayStudentInfo() {  
 System.*out*.println("Student Name: " + studentName);  
 System.*out*.println("Degree Name: " + degreeName);  
 System.*out*.println("Course Following: " + courseFollowing);  
 }  
}

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