**Worksheet 03**

**CTEC 22043**

**Object Oriented Programming**

**Student No: CT/2021/002**



**Faculty of Computing and Technology**

**University of Kelaniya**

**Sri Lanka**

**Worksheet 03**

**Q-01+02:**

**Code:**

*Main:*

package Q\_01;

import java.text.DecimalFormat;

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

//Q\_01

Scanner temp1 = new Scanner(System.in);

DecimalFormat df = new DecimalFormat("#.###");

System.out.println("Enter the Celsius Value: ");

double celsius = temp1.nextDouble();

Temperature t1= new Temperature();

t1.setCelsius(celsius);

System.out.println("The celsius value in fahrenheit is: "+df.format(t1.toFahrenheit()));

//Q\_02

Scanner temp2 = new Scanner(System.in);

System.out.println("Enter fahrenheit Value: ");

double fahrenheit = temp2.nextDouble();

Temperature t2 = new Temperature();

t2.setFahrenheit(fahrenheit);

System.out.println("The fahrenheit value in celsius is: "+df.format(t2.toCelsius()));

}

}

*Temperature:*

package Q\_01;

public class Temperature {

private double celsius;

public Temperature(){

this.celsius = 0;

}

public Temperature(double celsius) {

this.celsius = celsius;

}

public double toCelsius() {

return celsius;

}

public void setCelsius(double celsius) {

this.celsius = celsius;

}

public double toFahrenheit(){

return (celsius \* (double) 9 / 5 + 32);

}

public void setFahrenheit(double fahrenheit){

this.celsius = (fahrenheit - 32) \* (double) 5 / 9;

}

}

**Output:**

A screenshot of a computer program

AI-generated content may be incorrect.

**Q-03:**

**Code:**

*Main:*

package Q\_03;

import java.text.DecimalFormat;

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner inn = new Scanner(System.in);

Scanner out = new Scanner(System.in);

DecimalFormat df = new DecimalFormat("#.##");

System.out.println("Enter the radius of inner circle: ");

double innerRadius = inn.nextDouble();

System.out.println("Enter the radius of outer circle: ");

double outerRadius = out.nextDouble();

Circle innerCircle = new Circle(innerRadius);

Circle outerCircle = new Circle(outerRadius);

double area = (outerCircle.computeArea() - innerCircle.computeArea());

System.out.println("The area is: "+ df.format(area));

double circInn = innerCircle.computeCircumference();

double circOut = outerCircle.computeCircumference();

System.out.println("The circumference of the Inner circle: "+ df.format(circInn));

System.out.println("The circumference of the Outer circle: "+ df.format(circOut));

}

}

*Circle:*

package Q\_03;

public class Circle {

private double radius;

public Circle(double radius){

this.radius = radius;

}

public double getRadius() {

return radius;

}

public void setRadius(double radius) {

this.radius = radius;

}

public double computeArea(){

return (Math.PI \* radius \* radius);

}

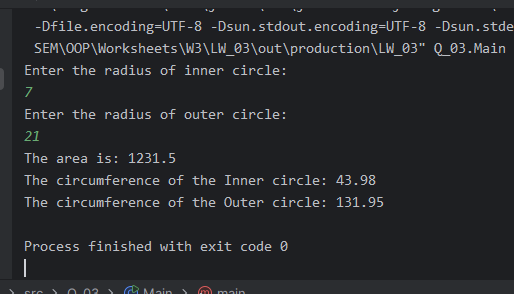
public double computeCircumference(){

return (2 \* Math.PI \* radius);

}

}

**Output:**

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**Q-04:**

**Code:**

*Main:*

package Q\_04;

public class Main {

public static void main(String[] args) {

Owner kumar = new Owner("Kumar","+94766354821");

Owner kavi = new Owner("Kavi","+94766354822");

Owner keshan = new Owner("Keshan","+94766354823");

BicycleNew bicycle1 = new BicycleNew(kumar);

BicycleNew bicycle2 = new BicycleNew(kavi);

BicycleNew bicycle3 = new BicycleNew(keshan);

System.out.println("Owner name: "+bicycle1.getBicycleOwner().getOwnerName()+"\nPhone number: "+bicycle1.getBicycleOwner().getPhoneNo());

System.out.println("Owner name: "+bicycle2.getBicycleOwner().getOwnerName()+"\nPhone number: "+bicycle2.getBicycleOwner().getPhoneNo());

System.out.println("Owner name: "+bicycle3.getBicycleOwner().getOwnerName()+"\nPhone number: "+bicycle3.getBicycleOwner().getPhoneNo());

}

}

*Bicycle:*

package Q\_04;

class Bicycle {

// Data Member

private String ownerName;

private String phoneNo;

//Constructor: Initializes the data member

public Bicycle() {

ownerName = "Unknown";

}

public Bicycle(String name, String num) {

ownerName = name;

phoneNo = num;

}

//Returns the name of this bicycle's owner

public String getOwnerName() {

return ownerName;

}

//Assigns the name of this bicycle's owner

public void setOwnerName(String name) {

ownerName = name;

}

//Returns the phone number of this bicycle's owner

public String getPhoneNo() {

return phoneNo;

}

//Assigns the name of this bicycle's owner

public void setPhoneNo(String num) {

phoneNo = num;

}

}

*BicycleNew:*

package Q\_04;

public class BicycleNew {

Owner bicycleOwner;

public BicycleNew (Owner bicycleOwner) {

this.bicycleOwner = bicycleOwner;

}

public Owner getBicycleOwner() {

return bicycleOwner;

}

public void setBicycleOwner(Owner bicycleOwner) {

this.bicycleOwner = bicycleOwner;

}

}

*Owner:*

package Q\_04;

public class Owner {

// Data Member

private String ownerName;

private String phoneNo;

public Owner(String ownerName, String phoneNo) {

this.ownerName = ownerName;

this.phoneNo = phoneNo;

}

//Returns the name of this bicycle's owner

public String getOwnerName() {

return ownerName;

}

//Assigns the name of this bicycle's owner

public void setOwnerName(String name) {

ownerName = name;

}

//Returns the phone number of this bicycle's owner

public String getPhoneNo() {

return phoneNo;

}

//Assigns the name of this bicycle's owner

public void setPhoneNo(String num) {

phoneNo = num;

}

}

**Output:**

**A computer screen shot of a number

AI-generated content may be incorrect.**

**Q-05:**

**Code:**

*Main:*

package Q\_05;

public class Main {

public static void main(String[] args) {

Course oop = new Course();

oop.setCourseName("Object Oriented Programming");

oop.setCourseCode("CTEC 22043");

Lecturer kumar = new Lecturer();

kumar.setLecturerName("Kumar");

kumar.setCourseTeaching("Object Oriented Programming");

Student sanga = new Student();

sanga.setStudentName("Sanga");

sanga.setDegreeName("Bachelor of Information and Communication Technology");

sanga.setCourseFollowing("Object Oriented Programming");

oop.setLecturerInCharge(kumar);

System.out.println("Student Details: ");

System.out.println("Student Name: "+sanga.getStudentName());

System.out.println("Degree Name: "+sanga.getDegreeName());

System.out.println("Course Name: "+sanga.getCourseFollowing()+"\n");

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");

System.out.println("Lecturer Details: ");

System.out.println("Lecturer Name: "+kumar.getLecturerName());

System.out.println("Courses Teaching: "+kumar.getCourseTeaching()+"\n");

}

}

*Course:*

package Q\_05;

public class Course {

*//Data Members*

private String courseName;

private String courseCode;

private Lecturer lecturerInCharge;

*//Getter for courseName*

public String getCourseName() {

return courseName;

}

*//Setter for courseName*

public void setCourseName(String courseName) {

this.courseName = courseName;

}

*//Getter for courseCode*

public String getCourseCode() {

return courseCode;

}

*//Setter For courseCode*

public void setCourseCode(String courseCode) {

this.courseCode = courseCode;

}

*//Getter for lecturerInCharge*

public Lecturer getLecturerInCharge() {

return lecturerInCharge;

}

*//Setter for lecturerInCharge*

public void setLecturerInCharge(Lecturer lecturerInCharge) {

this.lecturerInCharge = lecturerInCharge;

}

}

*Lecturer:*

package Q\_05;

public class Lecturer {

//Data Members

private String lecturerName;

private String courseTeaching;

//Getter for lecturerName

public String getLecturerName() {

return lecturerName;

}

//Setter for lecturerName

public void setLecturerName(String lecturerName) {

this.lecturerName = lecturerName;

}

//Getter for courseTeaching

public String getCourseTeaching() {

return courseTeaching;

}

//Setter for courseTeaching

public void setCourseTeaching(String courseTeaching) {

this.courseTeaching = courseTeaching;

}

}

*Student:*

package Q\_05;

public class Student {

//Data Members

private String studentName;

private String degreeName;

private String courseFollowing;

//Getter for studentName

public String getStudentName() {

return studentName;

}

//Setter for studentName

public void setStudentName(String studentName) {

this.studentName = studentName;

}

//Getter for degreeName

public String getDegreeName() {

return degreeName;

}

//Setter for degreeName

public void setDegreeName(String degreeName) {

this.degreeName = degreeName;

}

//Getter for courseFollowing

public String getCourseFollowing() {

return courseFollowing;

}

//Setter for courseFollowing

public void setCourseFollowing(String courseFollowing) {

this.courseFollowing = courseFollowing;

}

}

**Output:**

A screenshot of a computer program

AI-generated content may be incorrect.