CTEC 22043
Object Oriented Programming

Index No.: CT/2021/023
LW - 03

Faculty of Computing and Technology
University of Kelaniya
Sri Lanka

01)

```
package Q_01;

public class Temperature {
   private double celsius;

   public Temperature() {

   }

   public Temperature(double celsius){
      this.celsius = celsius;
   }

   public double toFahrenheit(){
      return celsius * 9 / 5 + 32;
   }

   public double toCelsius(){
      return (celsius - 32) * 5 / 9;
   }

   public void setFahrenheit(double fahrenheit){
      this.celsius = fahrenheit;
   }

   public void setCelsius(double celcius){
      this.celsius = celcius;
   }
}
```

```
package Q_01;

import java.util.Scanner;

public class Main {
   public static void main(String[] args) {
      Scanner input = new Scanner(System.in);
      double temp;

      System.out.print("Enter temperature in celsius : ");
      temp = input.nextDouble();
      Temperature inF = new Temperature(temp);

      System.out.print(temp + " C = " + inF.toFahrenheit() + " F");
   }
}
```

```
/Library/Java/JavaVirtualMachines/jdk1.8.0_321.jdk/Contents/Home/bin/java ...
Enter temperature in celsius : 0
0.0 C = 32.0 F
Process finished with exit code 0
```

02)

```
package Q_02;

import Q_01.Temperature;

import java.text.DecimalFormat;
import java.util.Scanner;

public class Main {
   public static void main(String[] args) {
      Scanner input = new Scanner(System.in);
      DecimalFormat df = new DecimalFormat("#.##");
      double temp;

      System.out.print("Enter temperature in Fahrenheit : ");
      temp = input.nextDouble();
      Temperature inC = new Temperature(temp);
      inC.setFahrenheit(temp);

      System.out.println(temp + " F = " + df.format(inC.toCelsius())+ " C" );
   }
}
```

```
/Library/Java/JavaVirtualMachines/jdk1.8.0_321.jdk/Contents/Home/bin/java ...
Enter temperature in Fahrenheit : 32
32.0 F = 0 C

Process finished with exit code 0
```

03)

```
package Q_03;

public class Circle {

   private double radius;

   public Circle(double radi){
      this.radius = radi;
   }

   public double computeArea(){
      return Math.PI*Math.pow(radius,2);
   }

   public double computeCircumference(){
      return 2*Math.PI*radius;
   }
}
```

```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 input = new Scanner(System.in);
        DecimalFormat df = new DecimalFormat("#.##");

        System.out.print("Enter the radius of the inner circle : ");
        innerRadius = input.nextDouble();
        Circle innerCircle = new Circle(innerRadius);

        System.out.print("Enter the radius of the outer circle : ");
        outerRadius = input.nextDouble();
        Circle outerCircle = new Circle(outerRadius);

        System.out.print("Shaded area = " + df.format(outerCircle.computeArea()-innerCircle.computeArea()));
    }


}
```

```
/Library/Java/JavaVirtualMachines/jdk1.8.0_321.jdk/Contents/Home/bin/java ...
Enter the radius of the inner circle : 5
Enter the radius of the outer circle : 10
Shaded area = 235.62
Process finished with exit code 0
```

04)

```java
package Q_04;

public class Owner {

    private String ownerName, phoneNo;

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

    public String getOwnerName() {
        return ownerName;
    }

    public void setOwnerName(String ownerName) {
        this.ownerName = ownerName;
    }

    public String getPhoneNo() {
        return phoneNo;
    }

    public void setPhoneNo(String phoneNo) {
        this.phoneNo = phoneNo;
    }
}
```

05)

```
package Q_05;

public class Course {

   private String courseName,courseCode;
   Lecturer lecturerInCharge = new 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 getLecturerInCharge() {
      return lecturerInCharge;
   }

   public void setLecturerInCharge(Lecturer lecturerInCharge) {
      this.lecturerInCharge = lecturerInCharge;
   }
}
```

```
package Q_05;

public class Lecturer {

   private String lecturerName,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, degreeName, 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;
   }
}
```

```
package Q_05;

public class Main {
   public static void main(String[] args) {
      Course oop = new Course();
      Lecturer kumar = new Lecturer();
      Student sanga = new Student();

      oop.setCourseName("Object Oriented Programming");
      oop.setCourseCode("CTEC-22043");

      kumar.setLecturerName("Kumar Yadew");
      kumar.setCourseTeaching("Object Oriented Programming");

      sanga.setStudentName("Sangakkara");
      sanga.setDegreeName("information Communication Technology");
      sanga.setCourseFollowing("Object Oriented Programming");

      oop.setLecturerInCharge(kumar);

      System.out.println("Student details  ");
      System.out.println("\tStudent Name : "+sanga.getStudentName());
      System.out.println("\tDegree Name  : "+sanga.getDegreeName());
      System.out.println("\tCourse Name  : "+sanga.getCourseFollowing());

      System.out.println("\nCourse details");
      System.out.println("\tCourse Name       : "+oop.getCourseName());
      System.out.println("\tCourse Code       : "+oop.getCourseCode());
      System.out.println("\tLecturer In Charge : "+oop.getLecturerInCharge().getLecturerName());

   }
}
```

```
/Library/Java/JavaVirtualMachines/jdk1.8.0_321.jdk/Contents/Home/bin/java ...
Student details
    Student Name : Sangakkara
    Degree Name  : information Communication Technology
    Course Name  : Object Oriented Programming

Course details
    Course Name        : Object Oriented Programming
    Course Code        : CTEC-22043
    Lecturer In Charge : Kumar Yadew

Process finished with exit code 0
```