

CTEC 22043

OBJECT ORIENTED PROGRAMMING

Lab sheet 03 – Defining Classes

CT / 2021 /033 – Perera P.S.A

Q 01.

Code:

```
package Q_01;

public class Temperature {
    private double celsius;
    public Temperature(){

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

    public double toCelsius(){
        return celsius;
    }

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

    public void setCelsius(double celsius) {
        this.celsius=celsius;
    }
    public void setFahrenheit(double fahrenheit){
        this.celsius = (fahrenheit - 32)*((double)5/9);
    }
}
```

```
package Q_01;

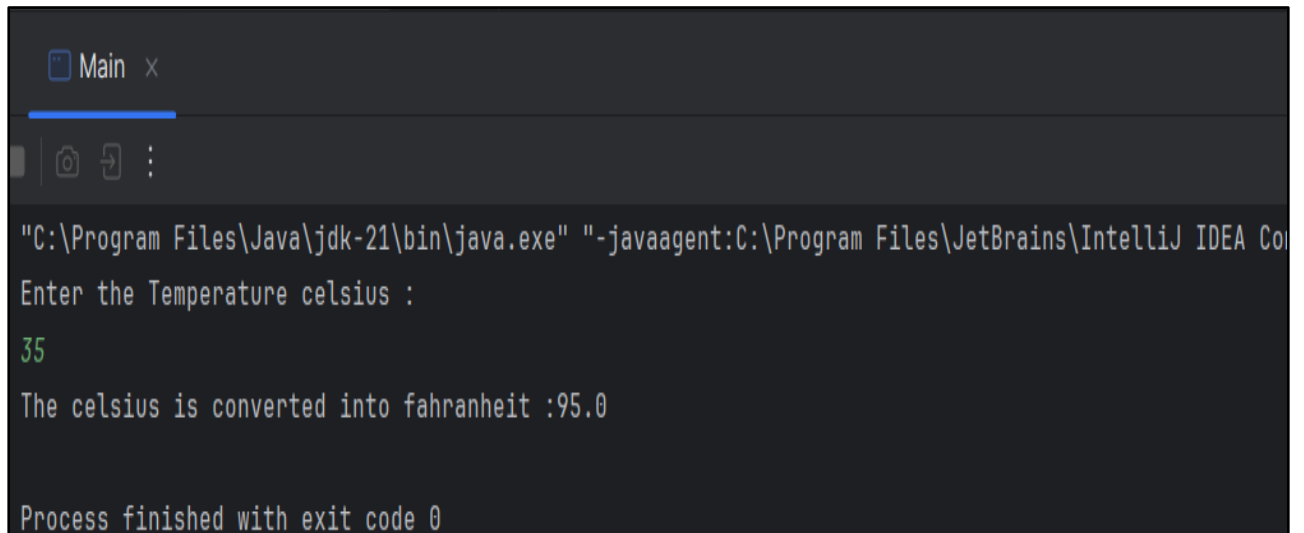
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter the Temperature celsius :");
        double celsius = scanner.nextDouble();

        Temperature temp=new Temperature();
        temp.setCelsius(celsius);
        System.out.println("The celsius is converted into fahranheit :"+temp.toFahrenheit());

    }
}
```

Output:



The screenshot shows a terminal window titled "Main" with a dark background. The command prompt shows the execution of the Java program. The output is as follows:

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Co
Enter the Temperature celsius :
35
The celsius is converted into fahranheit :95.0
Process finished with exit code 0
```

Q 02.

Code:

```
public class Temperature {
    private double celsius;
    public Temperature(){

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

    public double toCelsius(){
        return celsius;
    }

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

    public void setCelsius(double celsius) {
        this.celsius=celsius;
    }
    public void setFahrenheit(double fahrenheit){
        this.celsius = (fahrenheit - 32)*((double)5/9);
    }
}
```

```

import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter the Temperature celsius :");
        double celsius = scanner.nextDouble();

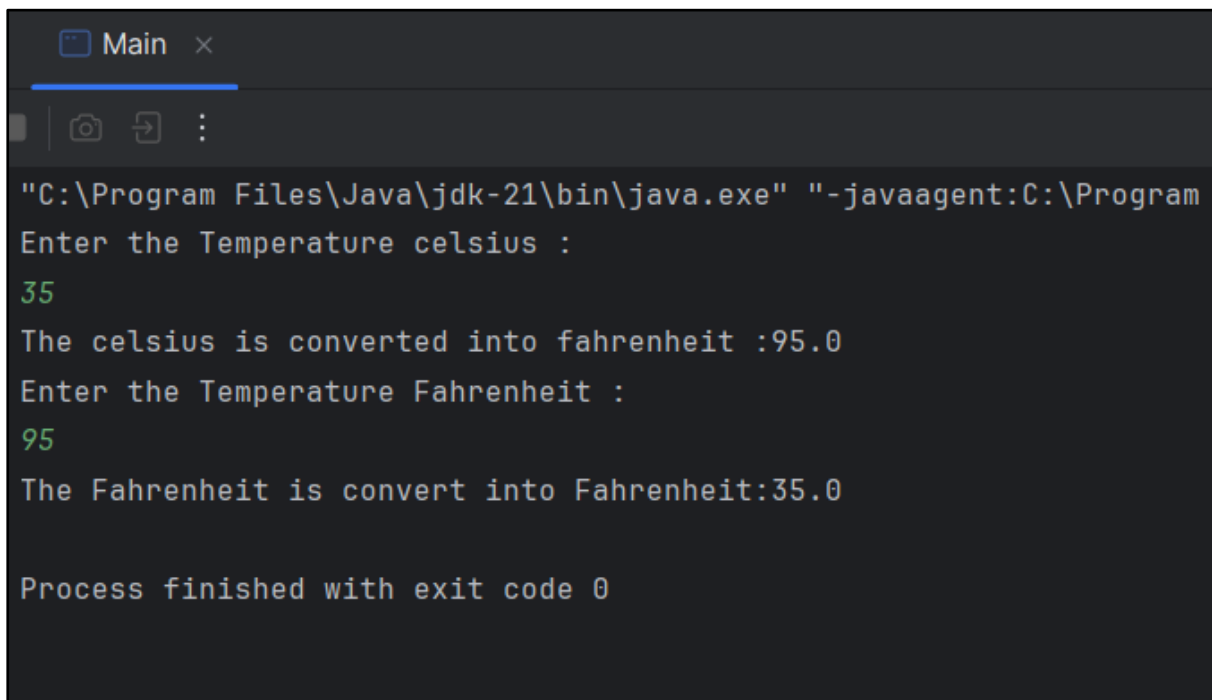
        Temperature temp=new Temperature();
        temp.setCelsius(celsius);
        System.out.println("The celsius is converted into fahrenheit :"+temp.toFahrenheit());

        //Q2
        System.out.println("Enter the Temperature Fahrenheit :");
        double fahrenheit = scanner.nextDouble();

        Temperature temp1 = new Temperature();
        temp1.setFahrenheit(fahrenheit);
        System.out.println("The Fahrenheit is convert into Fahrenheit:"+temp1.toCelsius());
    }
}

```

Output:



```

Main x
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program
Enter the Temperature celsius :
35
The celsius is converted into fahrenheit :95.0
Enter the Temperature Fahrenheit :
95
The Fahrenheit is convert into Fahrenheit:35.0

Process finished with exit code 0

```

Q 03.

Code:

```
package Q_03;

public class Circle {
    private double r;

    public Circle(){

    }
    public Circle(double r){
        this.r = r;
    }
    public double getR() {
        return r;
    }
    public void setR(double r) {
        this.r = r;
    }

    public double computeArea(){
        return Math.PI*r*r;
    }

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

}
```

```
package Q_03;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

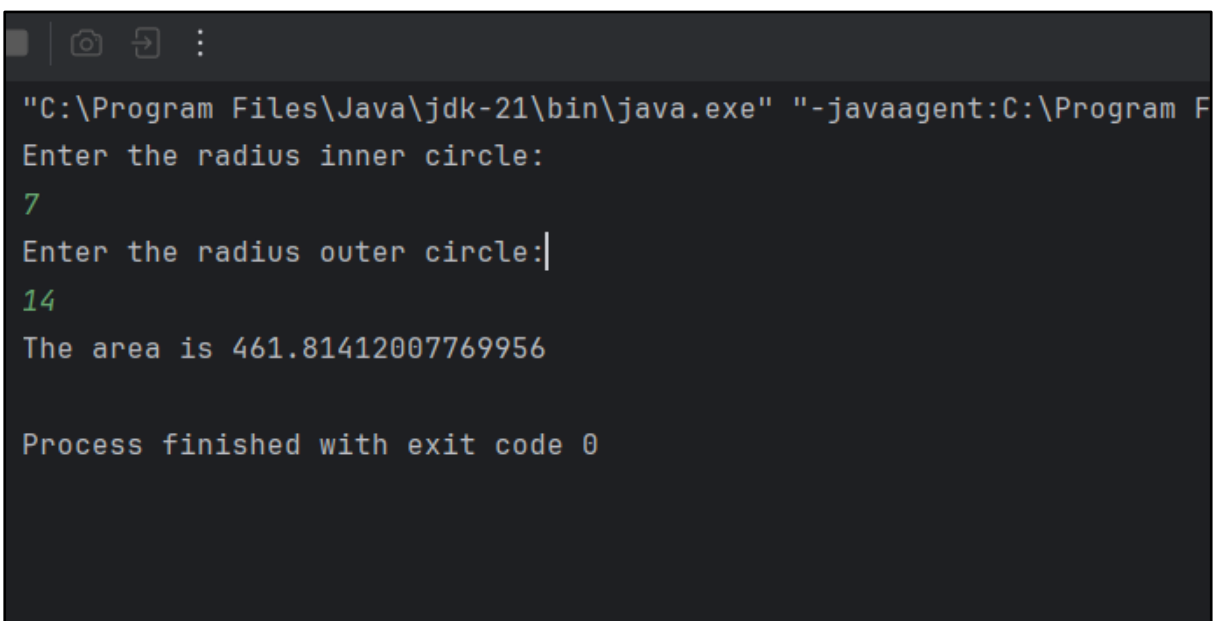
        System.out.println("Enter the radius inner circle:");
        double innerRadius=scanner.nextDouble();

        System.out.println("Enter the radius outer circle:");
        double outerRadius=scanner.nextDouble();

        Circle outerCircle = new Circle(outerRadius);
        Circle innerCircle = new Circle(innerRadius);

        double area = outerCircle.computeArea()-innerCircle.computeArea();
        System.out.println("The area is " +area);
    }
}
```

Output:

A screenshot of a Windows command prompt window. The title bar shows standard Windows icons. The command prompt shows the execution of a Java program. The command is "C:\Program Files\Java\jdk-21\bin\java.exe" with various flags. The program prompts for the inner radius, which is entered as 7. It then prompts for the outer radius, which is entered as 14. The program outputs the area as 461.81412007769956. Finally, it shows "Process finished with exit code 0".

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program F
Enter the radius inner circle:
7
Enter the radius outer circle:|
14
The area is 461.81412007769956

Process finished with exit code 0
```

Q 04.

Code:

```
package Q_04;

public class Owner {
    private String ownerName;
    private String phoneNo;

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

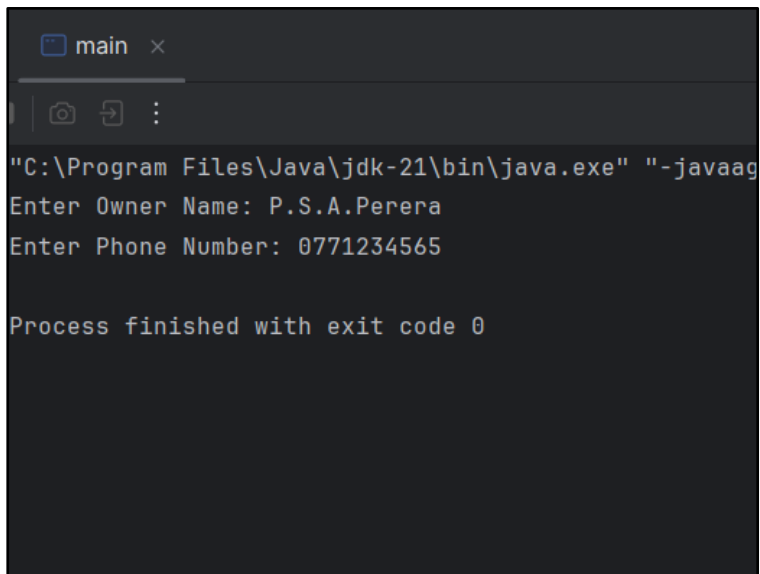
    public String getOwnerName() {
        return ownerName;
    }
    public void setOwnerName(String name) {
        ownerName = name;
    }
    public String getPhoneNo() {
        return phoneNo;
    }
    public void setPhoneNo(String num) {
        phoneNo = num;
    }
}
```



```
public class Bicycle_New {  
    Owner bicycleOwner;  
  
    public Bicycle_New(Owner bicycleOwner) {  
        this.bicycleOwner = bicycleOwner;  
    }  
  
    public Owner getBicycleOwner() {  
        return bicycleOwner;  
    }  
  
    public void setBicycleOwner(Owner bicycleOwner) {  
        this.bicycleOwner = bicycleOwner;  
    }  
}
```

```
package Q_04;  
import java.util.Scanner;  
  
public class main {  
    public static void main(String[] args) {  
        Scanner scanner = new Scanner(System.in);  
  
        System.out.println("Enter Owner Name: P.S.A.Perera");  
        System.out.println("Enter Phone Number: 0771234565");  
  
    }  
}
```

Output:



```
main x
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaag
Enter Owner Name: P.S.A.Perera
Enter Phone Number: 0771234565

Process finished with exit code 0
```

Q 05.

Code:

```
package Q_05;

public class Course {
    private String courseName;
    private String courseCode;
    private Lecture lectureIncharge;

    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 Lecture getLectureIncharge() {  
    return lectureIncharge;  
}  
  
public void setLectureIncharge(Lecture lectureIncharge) {  
    this.lectureIncharge = lectureIncharge;  
}  
}
```

```
package Q_05;  
  
public class Lecture {  
    private String lectureName;  
    private String CourseTeaching;  
  
    public String getLectureName() {  
        return lectureName;  
    }  
  
    public void setLectureName(String lectureName) {  
        this.lectureName = lectureName;  
    }  
  
    public String getCourseTeaching() {  
        return CourseTeaching;  
    }  
  
    public void setCourseTeaching(String courseTeaching) {  
        CourseTeaching = courseTeaching;  
    }  
}
```

```
package Q_05;

public class Student {
    private String studentName;
    private String degreeName;
    private String 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 course = new Course();
        course.setCourseName("OOP");
        course.setCourseCode("CTEC-22043");

        Lecture lecture=new Lecture();
        lecture.setLectureName("Dr.Kumara");
        lecture.setCourseTeaching("OOP");

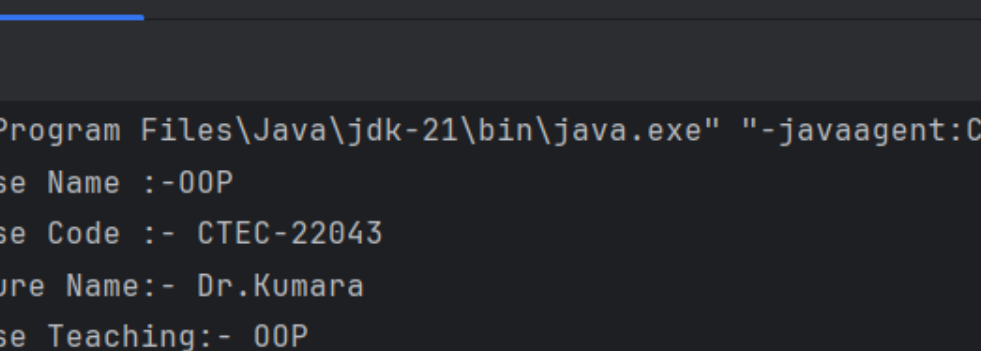
        Student student = new Student();
        student.setStudentName("Sahani");
        student.setCourseFollowing("OOP");
        student.setDegreeName("BICT");

        System.out.println("Course Name :-"+course.getCourseName());
        System.out.println("Course Code :- "+course.getCourseCode());

        System.out.println("Lecture Name:- "+lecture.getLectureName());
        System.out.println("Course Teaching:- "+lecture.getCourseTeaching());

        System.out.println("Student Name:- "+student.getStudentName());
        System.out.println("Course Following:- "+student.getCourseFollowing());
        System.out.println("Degree Name:- "+student.getDegreeName());

    }
}
```



```

Main x
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Progr
Course Name :-00P
Course Code :- CTEC-22043
Lecture Name:- Dr.Kumara
Course Teaching:- 00P
Student Name:- Sahani
Course Following:- 00P
Degree Name:- BICT

Process finished with exit code 0

```