TASK-07(A)

Shape.java

```java
package com;

public abstract class Shape {
	private String color;
	private boolean filled;
	public Shape(String color, boolean filled) {
		super();
		this.color = color;
		this.filled = filled;
	}
	public Shape() {
		super();
		this.color=" ";
		this.filled=false;
	}
	public String getColor() {
		return color;
	}
	public void setColor(String color) {
		this.color = color;
	}
	public boolean isFilled() {
		return filled;
	}
	public void setFilled(boolean filled) {
		this.filled = filled;
	}

	abstract public double getArea();
	abstract public double getPerimeter();
	abstract public String toString();


}
```

Circle.java

```java
package in;

import com.Shape;

public class Circle extends Shape {

	public double radius;
	static final double PI =3.14;
	public double ans1;

	public Circle(String color, boolean filled, double radius) {
		super(color, filled);
```

```
		this.radius = radius;
	}


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


	public double getRadius() {
		return radius;
	}


	public void setRadius(double radius) {
		this.radius = radius;
	}


	public Circle() {
		super();
	}


	@Override
	public double getArea() {
		// TODO Auto-generated method stub
		double ans1 = this.radius * this.radius * Circle.PI;
		return ans1;

	}

	@Override
	public double getPerimeter() {
		// TODO Auto-generated method stub
		return 2 * Circle.PI * this.radius;
	}

	@Override
	public String toString() {
		//System.out.println("AREA OF A CIRCLE IS...."+ans1);
		return ("AREA OF A CIRCLE IS ..."+this.getArea()+"\nPERIMETER OF A
CIRCLE IS ..."+this.getPerimeter());

	}



}
```

Rectangle.java

```java
package rct;

import com.Shape;

public class Rectangle extends Shape {
	public double length;
	public double width;


	public double getLength() {
		return length;
	}

	public void setLength(double length) {
		this.length = length;
	}

	public double getWidth() {
		return width;
	}

	public void setWidth(double width) {
		this.width = width;
	}

	public Rectangle() {
		super();
	}

	public Rectangle(double length, double width) {
		super();
		this.length = length;
		this.width = width;
	}

	public Rectangle(String color, boolean filled, double length, double width) {
		super(color, filled);
		this.length = length;
		this.width = width;
	}

	@Override
	public double getArea() {
		// TODO Auto-generated method stub
		return this.length * this.width;
	}

	@Override
	public double getPerimeter() {
		// TODO Auto-generated method stub
		return 2 * (this.length + this.width);
	}

	@Override
	public String toString() {
```

```
            return ("AREA OF A RECTANGLE IS ..."+this.getArea()+"\nPERIMETER OF A
RECTANGLE IS ..."+this.getPerimeter());
      }

}
```

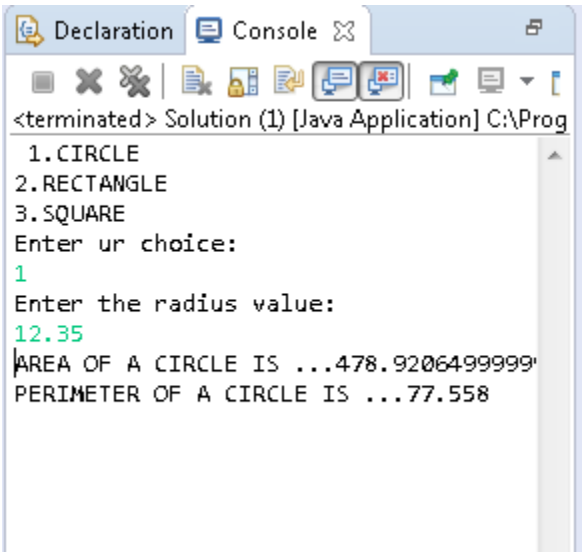
Square.java

```
package sq;

import rct.Rectangle;

public class Square extends Rectangle {

      public double side;

      public Square() {
            super();
      }
      public Square(double side) {
            super(side,side);
            this.side = side;
      }
      public Square(double side,String colour,boolean filled) {
            super(colour,filled,side,side);
            this.side = side;

      }

      public double getSide() {
            return side;
      }
      public void setSide(double side) {
            this.side = side;
      }
      @Override
      public void setLength(double length) {
            // TODO Auto-generated method stub
            super.setLength(length);
      }
      @Override
      public void setWidth(double width) {
            // TODO Auto-generated method stub
            super.setWidth(width);
      }
      @Override
      public String toString() {
            // TODO Auto-generated method stub
            return super.toString();
      }
```

}
Solution.java

```
package org;

import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;

import in.Circle;
import rct.Rectangle;
import sq.Square;


public class Solution {

		public static void main(String[] args) throws  IOException {
			BufferedReader bf = new BufferedReader(new
InputStreamReader(System.in));
			System.out.println(" 1.CIRCLE\n2.RECTANGLE\n3.SQUARE");
			System.out.println("Enter ur choice:");
			int choice = Integer.parseInt(bf.readLine());
			switch(choice){
			case 1:
				System.out.println("Enter the radius value:");
				double radius = Double.parseDouble(bf.readLine());
				Circle circle = new Circle(radius);
				System.out.println(circle);
				break;
			case 2:
				System.out.println("Enter the length value:");
				double length=Double.parseDouble(bf.readLine());
				System.out.println("Enter the width value:");
				double width=Double.parseDouble(bf.readLine());
				Rectangle rectangle = new Rectangle(length,width);
				System.out.println(rectangle);
				break;
			case 3:
				System.out.println("Enter the side value:");
				double side = Double.parseDouble(bf.readLine());
				Square square = new Square(side);
				System.out.println(square);
				break;

	}

}
}
```

OUTPUT



TASK-07(B)

MyDate.java

```
package day.in;

import java.util.*;

public class MyDate {
	private int year;
	private int month;
	private int day;
	private static String strMonths[] = { "Jan", "Feb", "Mar", "Apr", "May",
"Jun", "Jul", "Aug", "Sep", "Oct", "Nov","Dec" };
	private static String strDays[] = { "Sunday", "Monday", "Tuesday",
"Wednesday", "Thursday", "Friday", "Saturday" };
	private static int daysInMonths[] = { 31, 28, 31, 30, 31, 30, 31, 31, 30, 31,
30, 31 };

	public MyDate() {

	}

	public MyDate(int year, int month, int day) {
		super();
		this.year = year;
		this.month = month;
```

```
		this.day = day;
	}

	static boolean isLeapYear(int year) {
		if (year % 4 == 0) {
			return true;
		} else {
			return false;
		}

	}

	/*static boolean isValidDate(int year, int month, int day) {
		}*/

	public static int getDayOfWeek(int year, int month, int day) {
			Calendar cal = Calendar.getInstance();
			cal.set(year,month,day);
			return cal.get(cal.DAY_OF_WEEK);


	}

	public int getYear() {
		return year;
	}

	public void setYear(int year) {
		this.year = year;
	}

	public int getMonth() {
		return month;
	}

	public void setMonth(int month) {
		this.month = month;
	}

	public int getDay() {
		return day;
	}

	public void setDay(int day) {
		this.day = day;
	}

/*	public String toString() {
	return null;
}*/
    public int res;
	public MyDate nextDay() {
		MyDate obj = new MyDate();
		int a1 = daysInMonths[this.month - 1];
		boolean ans = isLeapYear(year);
```

```
	if ( this.month == 2 ) {
		if ((ans == true) && (this.day == 29)) {
			this.day = 1;
			obj.setDay(this.day);
			return obj;
		}
		else if ((ans == false) && (this.day == 28)) {
			this.day = 1;
			obj.setDay(this.day);
			return obj;
		}
		else {
			obj.setDay(this.day + 1);
			return obj;
			}
		}
	else
		{

		if(a1 == this.day) {
		this.day = 1;
		obj.setDay(this.day);
		return obj;
	}
		else
		{
			obj.setDay(this.day + 1);
			return obj;
		}

		}


}
public MyDate nextMonth() {
	MyDate obj = new MyDate();
	if(this.month == 12) {
		this.month = 1;
		obj.setMonth(this.month);
		return obj;

	} else {
	obj.setMonth(this.month + 1);
	return obj;
	}

}

public MyDate nextYear() {
	MyDate obj = new MyDate();
	obj.setYear(this.year + 1);
	return obj;
```

```
}

public MyDate previousDay() {
	MyDate obj = new MyDate();
	int a1 = daysInMonths[this.month - 1];
	boolean ans = isLeapYear(year);

	if ( this.month == 2 ) {
		if ((ans == true) && (this.day == 1)) {
			this.day = 29;
			obj.setDay(this.day);
			return obj;
		}
		else if ((ans == false) && (this.day == 1)) {
			this.day = 28;
			obj.setDay(this.day);
			return obj;
		}
		else {
			obj.setDay(this.day - 1);
			return obj;
			}
		}
	else
		{

		if(this.day == 1) {
		this.day = a1;
		obj.setDay(this.day);
		return obj;
	}
		else
		{
			obj.setDay(this.day - 1);
			return obj;
		}

		}

}

public MyDate previousMonth() {
	MyDate obj = new MyDate();
	if (this.month == 1) {
		this.month = 12;
		obj.setMonth(this.month);
		return obj;
	} else {
	obj.setMonth(this.month - 1);
	return obj;
	}

}

public MyDate previousYear() {
```

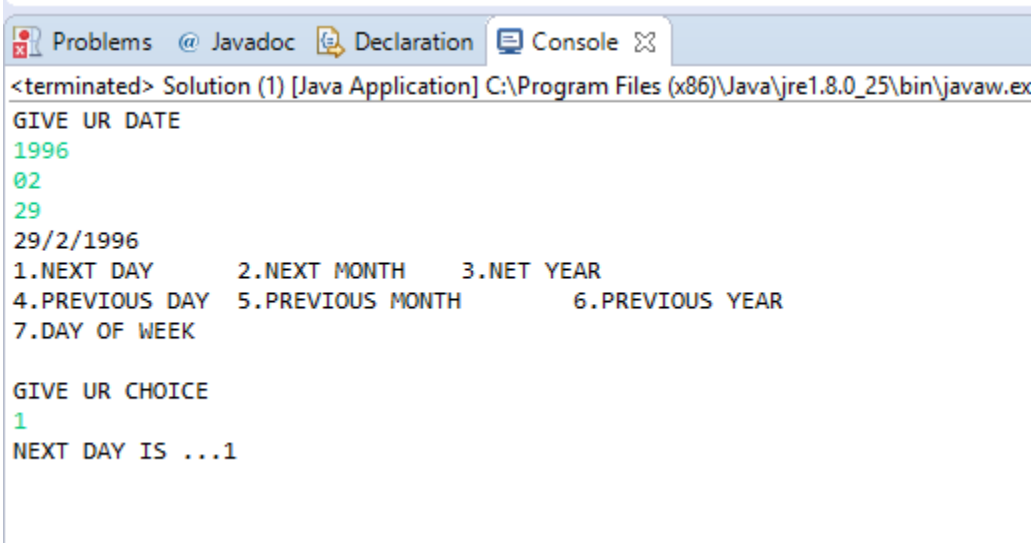
```
		MyDate obj = new MyDate();
		obj.setYear(this.year - 1);
		return obj;

	}

	}
```

Solution.java

```
package test;
import day.in.MyDate;
import java.util.Scanner;

public class Solution {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		Scanner input=new Scanner(System.in);
		int year = input.nextInt();
		int month = input.nextInt();
		int day = input.nextInt();
		String s = Integer.toString(year);
		String s1 = Integer.toString(month);
		String s2 = Integer.toString(day);
		String str = s + s1 + s2;
		System.out.print(str);
		int choice = input.nextInt();
		MyDate obj1 = new MyDate();
		MyDate obj2 = new MyDate();

		switch(choice) {
		case 1: obj1.setDay(day);
			obj1.setMonth(month);
			obj2 = obj1.nextDay();
			System.out.println(obj2.getDay());
			break;
		case 2: obj1.setMonth(month);
			obj2 = obj1.nextMonth();
			System.out.println(obj2.getMonth());
			break;
		case 3: obj1.setYear(year);
			obj2 = obj1.nextYear();
			System.out.println(obj2.getYear());
			break;
		case 4: obj1.setDay(day);
			obj1.setMonth(month);
			obj2 = obj1.previousDay();
			System.out.println(obj2.getDay());
			break;
		case 5: obj1.setMonth(month);
			obj2 = obj1.previousMonth();
			System.out.println(obj2.getMonth());
			break;
		case 6: obj1.setYear(year);
```

```
                        obj2 = obj1.previousYear();
                        System.out.println(obj2.getYear());
                        break;
                case 7: System.out.println(MyDate.getDayOfWeek(year,month-1,day));
                        break;

                default: System.out.println("INALID SELECTION");
                }


        }

}
```

OUTPUT



TASK-07(C)

Movable interface

```
package com.in;

public interface Movable {
       public void  moveUp();
    public void  moveDown();
    public void  moveLeft();
    public void  moveRight();
    }
```

Class MovablePoint

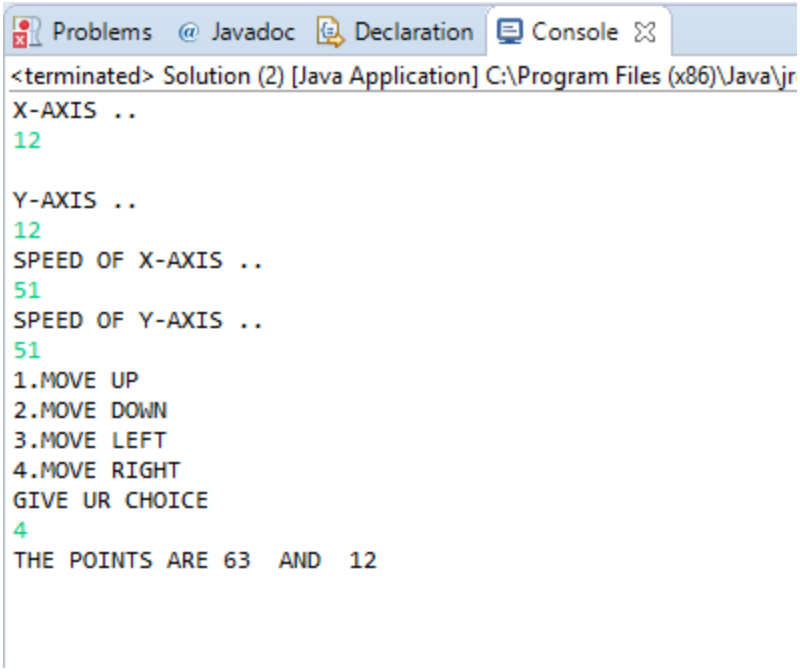
```java
package com.in;

public class MovablePoint implements Movable {

	 int x;
	int y;
	int xSpeed;
	int ySpeed;



	public MovablePoint() {
		super();
		this.x = 0;
		this.y = 0;
		this.xSpeed = 0;
		this.ySpeed = 0;
	}


	public MovablePoint(int x, int y, int xSpeed, int ySpeed) {
		super();
		this.x = x;
		this.y = y;
		this.xSpeed = xSpeed;
		this.ySpeed = ySpeed;
	}


	@Override
	public void moveUp() {
		this.y = y + ySpeed;

	}

	@Override
	public void moveDown() {
		this.y = y - ySpeed;

	}

	@Override
	public void moveLeft() {
		this.x = x - xSpeed;
	}

	@Override
	public void moveRight() {
		this.x = x + xSpeed;
	}

	public String toString() {
	  return "THE POINTS ARE "+x +"  AND  "+y;
 }
```

```
}
```

Class Solution

```
package org;
import com.in.MovablePoint;
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;

public class Solution {
	public static void main(String args[]) throws IOException {
		BufferedReader bf = new BufferedReader(new
InputStreamReader(System.in));
		System.out.println("X-AXIS ..");
		int x=Integer.parseInt(bf.readLine());
		System.out.println("\nY-AXIS ..");
		int y=Integer.parseInt(bf.readLine());
		System.out.println("SPEED OF X-AXIS ..");
		int xSpeed=Integer.parseInt(bf.readLine());
		System.out.println("SPEED OF Y-AXIS ..");
		int ySpeed=Integer.parseInt(bf.readLine());
		System.out.println("1.MOVE UP\n2.MOVE DOWN\n3.MOVE LEFT\n4.MOVE
RIGHT");
		MovablePoint Obj=new MovablePoint(x,y,xSpeed,ySpeed);
		System.out.println("GIVE UR CHOICE");
		int choice =Integer.parseInt(bf.readLine());
		switch(choice) {
		case 1:
			Obj.moveUp();
			System.out.println(Obj);
			break;
		case 2:
			Obj.moveDown();
			System.out.println(Obj);
			break;
		case 3:
			Obj.moveLeft();
			System.out.println(Obj);
			break;
		case 4:
			Obj.moveRight();
			System.out.println(Obj);
			break;
				}
		}
```

OUTPUT


Problems
Javadoc
Declaration
Console
<terminated> Solution (2) [Java Application] C:\Program Files (x86)\Java\jr
X-AXIS ..
12
Y-AXIS ..
12
SPEED OF X-AXIS ..
51
SPEED OF Y-AXIS ..
51
1.MOVE UP
2.MOVE DOWN
3.MOVE LEFT
4.MOVE RIGHT
GIVE UR CHOICE
4
THE POINTS ARE 63 AND 12