IS2104

Rapid Application Development 2020

Activity 8

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Q1.

```java
public class AnimalMain{
    public static void main(String[] args) {

        Animal Padfoot=new Dog();
        Padfoot.makeSound();

        Animal Crookshanks=new Cat();
        Crookshanks.makeSound();

    }
}


class Animal{
    public void makeSound(){

    }

}

class Cat extends Animal{

    public void makeSound(){

        System.out.println("Meow");

    }

}


class Dog extends Animal{

    public void makeSound(){

        System.out.println("Woof");

    }

}
```

```
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C:\Users\Hansika>cd Desktop

C:\Users\Hansika\Desktop>javac AnimalMain.java

C:\Users\Hansika\Desktop>java AnimalMain
Woof
Meow

C:\Users\Hansika\Desktop>
```

Q2.

```java
public class ShapeMain{
    public static void main(String[] args) {

        Shape R1= new Rectangle(15.5,10.1);
        System.out.println(R1.getArea());

        Shape T1= new Triangle(10.5,5.5);
        System.out.println(T1.getArea());

        Circle C1=new Circle(7.7);
        System.out.println(C1.getArea());




    }
}

class Shape{

    public double getArea(){

        return 0;
    }
}

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


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

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

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

```java
public double getWidth() {
    return width;
}
public double getLength() {
    return length;
}

public double getArea() {
  return width * length;
}



}

class Triangle extends Shape{
    private double base;
    private double height;


    public Triangle(double base, double height){
        this.base=base;
        this.height=height;
    }

    public void setBase(double base) {
        this.base =base;
    }

    public void setheight(double height) {
       this.height=height;
    }

    public double getBase() {
        return base;
    }
    public double getHeight() {
        return height;
    }

    public double getArea() {
      return (base* height)/2;
    }
```

```java
    public double getArea() {
      return (base* height)/2;
    }



    }

    class Circle extends Shape{
        private double radius;
        private static final double pi=3.14;

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

        public double getArea(){
            return pi*radius*radius;
        }
    }
```

```
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C:\Users\Hansika>cd Desktop

C:\Users\Hansika\Desktop>javac ShapeMain.java

C:\Users\Hansika\Desktop>java ShapeMain
156.54999999999998
28.875
186.1706

C:\Users\Hansika\Desktop>
```

Q3.

```java
class Maths{
    public static int doMagic(int firstNum,int secondNum){
        return firstNum+secondNum;
    }
    public static double doMagic(double firstNum,double secondNum){
        return firstNum*secondNum;
    }
}
public class MathsMagic {
    public static void main(String[] args){
        System.out.println(Maths.doMagic(10,5));
        System.out.println(Maths.doMagic(5.5,4.5));
    }
}
```

```
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C:\Users\Hansika>cd Desktop

C:\Users\Hansika\Desktop>javac MathsMagic.java

C:\Users\Hansika\Desktop>java MathsMagic
15
24.75

C:\Users\Hansika\Desktop>
```

Q4.

```java
class PatternGen{
    public void generatePattern(){
        for(int i=1;i<=5;i++){
            for(int j=0;j<i;j++){
                System.out.print("*");}
            System.out.println();
        }
    }
public void generatePattern(char k){
        for(int i=1;i<=5;i++){
            for(int j=0;j<i;j++){
                System.out.print(k);
            }
            System.out.println();
        }
    }

    public void generatePattern(int number){
        for(int i=1;i<=4;i++){
            for(int j=0;j<i;j++){
                System.out.print("+");
            }
            System.out.println();
        }
    }public void generatePattern(int number,char k){
        for(int i=1;i<=7;i++){
            for(int j=0;j<i;j++){
                System.out.print(k);
            }
            System.out.println();
        }
    }
}
public class PatternMain {
    public static void main(String[] args){
        PatternGen P1=new PatternGen();
        P1.generatePattern();
        PatternGen P2=new PatternGen();
        P2.generatePattern('a');
        PatternGen P3=new PatternGen();
        P3.generatePattern(10);
        PatternGen P4=new PatternGen();
        P4.generatePattern(8,'b');
}
```

```
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C:\Users\Hansika>cd Desktop

C:\Users\Hansika\Desktop>javac PatternMain.java

C:\Users\Hansika\Desktop>java PatternMain
*
**
***
****
*****
a
aa
aaa
aaaa
aaaaa
+
++
+++
++++
b
bb
bbb
bbbb
bbbbb
bbbbbb
bbbbbbb
```