Class shape

```
package shape;

public class Shape {
	private String color;
	private boolean filled;

	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;
	}
	public Shape(String color, boolean filled) {
		super();
		this.color = color;
		this.filled = filled;
	}
	public Shape() {
		super();
		this.color = "";
		this.filled = false;
	}


}
```

Class Circle

```
package circle;

import shape.Shape;

public class Circle extends Shape {
	private double radius;
	public final static double  PI=3.14;
	public double getRadius() {
		return radius;
	}
	public void setRadius(double radius) {
		this.radius = radius;
	}
	public static double getPi() {
		return PI;
	}
	public Circle(String color, boolean filled, double radius) {
		super(color, filled);
		this.radius = radius;
	}
```

```
	public Circle(String color, boolean filled) {
		super(color, filled);
	}
	public Circle() {
		super();
		this.radius=0.0;
	}
	public double area() {
		return this.radius * this.radius * Circle.PI;
	}



}
```

Class Rectangle

```
package rectangle;

import shape.Shape;

public class Rectangle extends Shape {
	private double length;
	private double breath;
	public double getLength() {
		return length;
	}
	public void setLength(double length) {
		this.length = length;
	}
	public double getBreath() {
		return breath;
	}
	public void setBreath(double breath) {
		this.breath = breath;
	}
	public Rectangle(String color, boolean filled, double length, double breath) {
		super(color, filled);
		this.length = length;
		this.breath = breath;
	}
	public Rectangle() {
		super();
		this.length=0.0;
		this.breath=0.0;
	}
	public Rectangle(String color, boolean filled) {
		super(color, filled);
	}
	public double area() {
		return this.length*this.breath;
	}

}
```

Class Triangle

```
package triangle;

import shape.Shape;

public class Triangle extends Shape {
	private double height;
	private double base;
	public final static double HALF = 0.5;
	public double getHeight() {
		return height;
	}
	public void setHeight(double height) {
		this.height = height;
	}
	public double getBase() {
		return base;
	}
	public void setBase(double base) {
		this.base = base;
	}
	public static double getHalf() {
		return HALF;
	}
	public Triangle(String color, boolean filled, double height, double base) {
		super(color, filled);
		this.height = height;
		this.base = base;
	}
	public Triangle(String color, boolean filled) {
		super(color, filled);
	}
	public Triangle() {
		super();
		this.height = 0.0;
		this.base = 0.0;
	}
	public double area() {
		return this.height * this.base * Triangle.HALF;
	}


}
```

Class Cylinder

```
package cylinder;

import circle.Circle;

public class Cylinder extends Circle {
	private double height;
```

```
	public double getHeight() {
		return height;
	}

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

	public Cylinder(String color, boolean filled, double radius, double height) {
		super(color, filled, radius);
		this.height = height;
	}

	public Cylinder(String color, boolean filled, double height) {
		super(color, filled);
		this.height = height;
	}

	public Cylinder(double height) {
		super();
		this.height = height;
	}
	public Cylinder() {
		super();
		this.height = 0.0;
	}
	public double area() {
		return super.area() * height;
	}

}
```

Class Solution

```
package solution;
import shape.Shape;
import circle.Circle;
import rectangle.Rectangle;
import triangle.Triangle;
import cylinder.Cylinder;
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("1.CIRCLE AREA\n2.RECTANGLE AREA\n3.TRIANGLE
AREA\n4.CYLINDER AREA");
		System.out.println("ENTER YOUR CHOICE");
```

```
                int choice = Integer.parseInt(bf.readLine());
                System.out.println("ENTER YOUR COLOR");
                String color = bf.readLine();
                System.out.println("FILLED OPTION");
                boolean filled =Boolean.parseBoolean(bf.readLine());
                switch(choice) {
                case 1:

                      System.out.println("Enter the radius value:");
                      double radius=Double.parseDouble(bf.readLine());
                      Circle circle = new Circle(color,filled,radius);
                      circle = new Circle(color,filled);
                      double areaCircle = circle.area();
                      System.out.println("CIRCLE AREA:"+areaCircle);
                      break;
                case 2:
                      System.out.println("Enter the length value:");
                      double length = Double.parseDouble(bf.readLine());
                      System.out.println("Enter the breath value:");
                      double breath = Double.parseDouble(bf.readLine());
                      Rectangle rectangle=new Rectangle(color,filled,length,breath);
                      double areaRectangle = rectangle.area();
                      System.out.println("RECTANGLE AREA:"+areaRectangle);
                      break;
                case 3:
                      System.out.println("Enter the height value:");
                      double height = Double.parseDouble(bf.readLine());
                      System.out.println("Enter the base value:");
                      double base = Double.parseDouble(bf.readLine());
                      Triangle triangle = new Triangle(color,filled,height,base);
                      double areaTriangle = triangle.area();
                      System.out.println("TRIANGLE AREA:"+areaTriangle);
                      break;
                case 4:
                    System.out.println("Enter the height value:");
                      double height1 = Double.parseDouble(bf.readLine());
                      System.out.println("Enter the radius value:");
                      double radius1 = Double.parseDouble(bf.readLine());
                      Cylinder  cylinder= new  Cylinder(color,filled, radius1,
height1);
                      double areaCylinder = cylinder.area();
                      System.out.println("CYLINDER AREA:"+areaCylinder);
                      break;

                }

  }

}
```