

Shape.java

```
package shape;

public class Shape {
    private String color;
    private boolean filled;
    public Shape(String color, boolean filled) {
        super();
        this.color = color;
        this.filled = filled;
    }
    public Shape() {
        super();
    }
    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;
    }
}
```

Circle.java

```
package shape;

public class Circle extends Shape {
    public double radius;
    private static final 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();
        this.radius = radius;
    }
    public Circle(double radius) {
        super();
    }
}
```

```

        this.radius = radius;
    }
    public Circle() {
        super();
    }
    public double area() {
        return this.radius * this.radius * Circle.PI;
    }
}

```

Cylinder.java

```

package com;

import shape.Circle;

public class Cylinders extends Circle {
    public double height;

    public double getHeight() {
        return height;
    }

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

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

    public Cylinders(double radius, double height) {
        super(radius);
        this.height = height;
    }

    public Cylinders(double height) {
        super();
        this.height = height;
    }

    public Cylinders() {
        super();
    }

    public double area() {
        return super.area() * height;
    }
}

```

Rectangle.java

```
package com;

public class Rectangle extends Cylinders {
    public double length;
    public double breadth;
    public double getLength() {
        return length;
    }
    public void setLength(double length) {
        this.length = length;
    }
    public double getBreadth() {
        return breadth;
    }
    public void setBreadth(double breadth) {
        this.breadth = breadth;
    }
    public Rectangle(String color, boolean filled, double radius,
        double height, double length, double breadth) {
        super(color, filled, radius, height);
        this.length = length;
        this.breadth = breadth;
    }
    public Rectangle(double radius, double height, double length, double breadth)
{
        super(radius, height);
        this.length = length;
        this.breadth = breadth;
    }
    public Rectangle(double height, double length, double breadth) {
        super(height);
        this.length = length;
        this.breadth = breadth;
    }
    public Rectangle(double length, double breadth) {
        super();
        this.length = length;
        this.breadth = breadth;
    }
    public Rectangle() {
        super();
    }

    public double area() {
        return this.length * this.breadth;
    }
}
```

Solution.java

```
package org;

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

import com.Cylinders;
import com.Rectangle;
import shape.Circle;

public class Solution {
    public static void main(String args[]) throws IOException {
        BufferedReader bf = new BufferedReader(new
        InputStreamReader(System.in));
        System.out.println("1.circle    2.cylinder  3.rectangle ");
        System.out.println("choice: ");
        int choice = Integer.parseInt(bf.readLine());
        //final double height;
        switch(choice) {
            case 1:
                Circle circle = new Circle();
                System.out.println("VALUE FOR RADIUS..");
                circle.radius=Double.parseDouble(bf.readLine());
                System.out.println("AREA OF A CIRCLE IS:"+circle.area());
                break;
            case 2:
                System.out.println("VALUE FOR HEIGHT..");
                double height1=Double.parseDouble(bf.readLine());
                System.out.println("VALUE FOR RADIUS..");
                double rad=Double.parseDouble(bf.readLine());
                Cylinders cylinder = new Cylinders(rad,height1);
                System.out.println("AREA OF A CYLINDER IS :"+cylinder.area());
                break;
            case 3:
                Rectangle rectangle = new Rectangle();
                System.out.println("VALUE FOR LENGTH..");
                rectangle.length=Double.parseDouble(bf.readLine());
                System.out.println("VALUE FOR BREADTH..");
                rectangle.breadth=Double.parseDouble(bf.readLine());
                System.out.println("AREA OF A RECTANGLE IS:"+rectangle.area());
                break;
            default: System.out.println("INVALID SELECTION");
                break;
        }
    }
}
```