```java
package EKPL.Chapter4FundamentalDataType.Balloon;

/**
 * Created by Sheldon on 11/1/2016.
 * E4.23
 * A program that calculates the balloon volume after
 * certain amount air is loaded
 */
public class Balloon {
  private double _volume; //holds the added volume
  private double _surfaceArea;  //holds the surface area
  private double _radius; //holds the radius

  /**
   * Construct a balloon object without parameters
   */
  public Balloon() {
  }

  /**
   * Construct a balloon object with specified volume
   *
   * @param volume the specified volume
   */
  public Balloon(double volume) {
    _volume = volume;
  }

  /**
   * Calculate the current volume after certain amount of air is loaded
   *
   * @param amount the air volume
   */
  public void addAir(double amount) {
    _volume = _volume + amount;
  }

  /**
   * Calculate the balloon radius
   */
  public void calculateRadius() {
    final double MULTIPLIER = 3;
    final double DIVIDER = 4;
    double r = (_volume * MULTIPLIER) / (DIVIDER * Math.PI);
    _radius = Math.cbrt(r);
  }

  /**
   * Calculate the balloon surface area
   */
  public void calculateSurfaceArea() {
    final double MULTIPLIER = 4.0;
    _surfaceArea = MULTIPLIER * Math.PI * _radius * _radius;
  }

  /**
   * Get the current balloon volume
   *
   * @return the balloon volume
```

```
60     */
61    public double getVolume() {
62      return _volume;
63    }
64
65    /**
66     * Get the current balloon surface area
67     *
68     * @return the suface area
69     */
70    public double getSurfaceArea() {
71      return _surfaceArea;
72    }
73
74    /**
75     * Get the current balloon radius
76     *
77     * @return the radius
78     */
79    public double getRadius() {
80      return _radius;
81    }
82 }
```

```java
package EKPL.Chapter4FundamentalDataType.Balloon;

import javax.swing.*;
import java.text.DecimalFormat;

/**
 * Created by Sheldon on 11/1/2016.
 * E4.23
 * A program that simulates the balloon properties calculation
 */
public class BalloonTester {
  public static void main(String[] args) {
    System.out.printf("%60s%n%n", "A program that simulates the balloon properties calculation");
    //Prompt the user to add certain amount of air
    double airVolume = Double.parseDouble(JOptionPane.showInputDialog("Pump your balloon! (volume cm^3)"));

    //Construct a balloon object
    Balloon theBalloon = new Balloon();

    //Calculate balloon properties
    theBalloon.addAir(airVolume);
    theBalloon.calculateRadius();
    theBalloon.calculateSurfaceArea();

    double volume = theBalloon.getVolume();
    double radius = Double.parseDouble(new DecimalFormat(".##").format(theBalloon.getRadius()));
    double surfaceArea = Double.parseDouble(new DecimalFormat(".##").format(theBalloon.getSurfaceArea()));

    //Display the result
    System.out.printf("Current balloon volume %11s%,8.2f%4s%n", "(V)= ", volume, " cm3");
    System.out.printf("Current balloon radius %11s%,8.2f%3s%n", "(r)= ", radius, " cm");
    System.out.printf("Current balloon surface area %4s%,8.2f%4s%n", "(A)= ", surfaceArea, " cm2");
  }
}
```