

SAE 2

November 16, 2021

1 Short Assessed Exercise

2 Level –2–

2.1 –Esad Simsek –

2.2 –04 November 2021–

2.3 Version –1–

2.4 Summary of the Question

– Write a program for an artist who is creating art instillation “experiences” consisting of rooms totally full of balloons that people will walk around in. Different instillations will be in different sized rooms and different sized balloons so need different numbers of balloons to fill them. The salesperson will enter the length, width and height of the room in centimetres. Write separate methods to input each of these values (they may possibly call other general methods) and return the results. These three numbers are multiplied together to get the volume of the room. This should be then be converted to m3 (calculated by dividing the volume by 1,000,000). This is then divided by the volume taken up by each balloon in m3 as given by the user. –

2.4.1 – Main Method –

What it does – The variables needed are declared, afterwards the inputs are collected from the user. After the main method is used to print the baloon number and the volume of the room–

Implementation (how it works) – Firstly I declare the types of the variables that I will use, then I inserted the scanner function and by asking questions answers are collected and they get assigned to the variables. In the main method I call the other 2 methods and deliver the needed variables to the other methods –

```
[3]: public static void main() {  
  
    Scanner Input = new Scanner (System.in) ;  
  
    double lenght ;  
    double width ;  
    double height ;  
    double baloonVolume ;
```

```

final double balloonNumber ;
final double volume ;

System.out.println ( "Only Positive numbers should be entered");

System.out.println ( "Enter the length of the room (in cm)?");

lenght = Input.nextDouble() ;

System.out.println ( "Enter the width of the room (in cm)?");

width = Input.nextDouble() ;

System.out.println ( "Enter the height of the room (in cm)?") ;

height = Input.nextDouble() ;

System.out.println ( "Enter the balloon volume (in m3)?") ;

balloonVolume = Input.nextDouble() ;

// calling the 2nd method and delivering the variables to it.
volume = calculateVolume(lenght,height,width);

// calling the 3rd method and delivering the variables to it.
balloonNumber = calculateBaloonNumber(volume, balloonVolume);

System.out.println ( "The volume of the room is " + volume + " m3" ) ;

//converting a double variable to an integer.
System.out.println ("You need " + (int)Math.floor(balloonNumber) + " balloons."
↪) ;

return;
}

```

2.4.2 – Method 2 –

What it does –Method 2 is to calculate the volume of the room –

Implementation (how it works) – It calculates the volume by taking variables from the main method –

```

[4]: public static double calculateVolume(double lenght, double height, double
↪width){

```

```

// this is double because this method returns a double value.

    double volume ;

    volume = lenght * height * width / 1000000;

    return volume;
//returning the value that is assigned by Method 2 to the main method.
}

```

2.4.3 – Method 3 –

What it does – Method 3 is to calculate the baloon number –

Implementation (how it works) – It calculates the volume by taking variables from the main method –

```

[5]: public static double calculateBalloonNumber (double volume, double baloonVolume)
{

    double balloonNumber;

    balloonNumber = volume / baloonVolume ;

    return balloonNumber;
//returning the value that is assignd by method 3 to the main method.
}

```

Testing

```

[6]: main();

```

Only Positive numbers should be entered

Enter the length of the room (in cm)?

1000

Enter the width of the room (in cm)?

20

Enter the height of the room (in cm)?

330

Enter the balloon volume (in m3)?

0.07

The volume of the room is 6.6 m3
You need 94 balloons.

2.5 The complete program

This version will only compile here. To run it copy it into a file called initials.java on your local computer and compile and run it there.

```
[15]: // Esad Simsek
      // 04/11/2021
      // VERSION 1
      public static void main() {

          Scanner Input = new Scanner (System.in) ;

          double lenght ;
          double width ;
          double height ;
          double baloonVolume ;
          final double balloonNumber ;
          final double volume ;

          System.out.println ( "Only Positive numbers should be entered");

          System.out.println ( "Enter the length of the room (in cm)?");

          lenght = Input.nextDouble() ;

          System.out.println ( "Enter the width of the room (in cm)?");

          width = Input.nextDouble() ;

          System.out.println ( "Enter the height of the room (in cm)?") ;

          height = Input.nextDouble() ;

          System.out.println ( "Enter the balloon volume (in m3)?") ;

          baloonVolume = Input.nextDouble() ;

          // calling the 2nd method and delivering the variables to it.
          volume = calculateVolume(lenght,height,width);

          // calling the 3rd method and delivering the variables to it.
          balloonNumber = calculateBaloonNumber(volume, baloonVolume);
```

```

System.out.println ( "The volume of the room is " + volume + " m3" ) ;
//converting a double variable to an integer.

System.out.println ("You need " + (int)Math.floor(balloonNumber) + " balloons."
↪) ;

    return;
}

public static double calculateVolume(double lenght, double height, double
↪width){

// this is double because this method returns a double value.

    double volume ;

    volume = lenght * height * width / 1000000;

    return volume;
//returning the value that is assigned by Method 2 to the main method.

}

public static double calculateBaloonNumber (double volume, double baloonVolume)
{

    double balloonNumber;

    balloonNumber = volume / baloonVolume ;

    return balloonNumber;
//returning the value that is assignd by method 3 to the main method.

}

```

END OF LITERATE DOCUMENT