Date: 21-04-23

Experiment - 4.1

Aim:

Create a class Box that uses a parameterised constructor to initialise the dimension of a box. The dimension of the box are width, height, depth. The class should have a method that can return the volume of the box. Create an object of the box class and test the functionalities.

Code:

```
public class Box {
   private double width;
   private double height;
   private double depth;

   public Box(double width, double height, double depth) {
      this.width = width;
      this.height = height;
      this.depth = depth;
   }

   public double getVolume() {
      return width * height * depth;
   }

   public static void main(String[] args) {
      Box myBox = new Box(10, 5, 3);
      System.out.println("Volume of the box is: " + myBox.getVolume());
   }
}
```

Output:

```
Volume of the box is: 150.0
```

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Experiment - 4.2

Aim:

Write a program to display the use of this keyword.

Code:

```
public class Person {
   private String name;
   private int age;

   public Person(String name, int age) {
      this.name = name;
      this.age = age;
   }

   public void displayInfo() {
      System.out.println("Name: " + this.name);
      System.out.println("Age: " + this.age);
   }

   public static void main(String[] args) {
      Person person = new Person("John Doe", 30);
      person.displayInfo();
   }
}
```

Output:

```
Name: John Doe
Age: 30
```

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Experiment - 4.3

Aim:

Write a program that can count the number of instances created by the class.

Code:

```
public class InstanceCounter {
   private static int numInstances = 0;

   public InstanceCounter() {
      numInstances++;
   }

   public static int getNumInstances() {
      return numInstances;
   }

   public static void main(String[] args) {
      InstanceCounter firstInstance = new InstanceCounter();
      InstanceCounter secondInstance = new InstanceCounter();
      InstanceCounter thirdInstance = new InstanceCounter();

      System.out.println("Number of instances created: " + InstanceCounter.getNumInstances());
   }
}
```

Output:

```
Number of instances created: 3
```

Date: 21-04-23

Experiment - 4.4

Aim:

Write a program to get the cube of a given number using the static method.

Code:

```
public class CubeCalculator {
   public static void main(String[] args) {
      int num = 5;
      int cube = getCube(num);
      System.out.println("The cube of " + num + " is " + cube);
   }

   public static int getCube(int num) {
      return num * num * num;
   }
}
```

Output:

```
The cube of 5 is 125
```