

# D.S.COLLEGE,ALIGARH



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**Assignment & Practical Work  
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**“JAVA PROGRAMMING”**

**Topic : Java Vector Class**

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# Vector Class in Java

## ➤ What is a Vector in Java

Vector is a collection which holds heterogeneous Objects that are it can hold objects of different class type and then each object is type casted to its original class. Vector is synchronized that is multiple threads can work on a vector simultaneously which makes vector slow.

The Vector class **implements a growable array of objects**. Like an array, it contains components that can be accessed using an integer index. However, the size of a Vector can grow or shrink as needed to accommodate adding and removing items after the Vector has been created.

Vector is like a dynamic array that can grow or shrink its size. Unlike an array, we can store n-number of elements in it as there is no size limit. It is a part of the Java collection framework since java 1.2. It is found in java.util package and implements the list interface, so we can use all the methods of the list interface here. It is similar to the ArrayList, but with two differences-

- Vector is synchronized.
- Java Vector contains many legacy methods that are not part of a collections framework.

In this article, we are going to learn about **Vector class of Java**. Here, we will explain about it with the help of example.

```
Vector V = new Vector ();  
V.add(new Student('100','ramesh'));  
V.add(new Company('101','Airtel'));
```

Here, **Vector V** holds two objects of different classes Student and Object.

We can also add integer, float or string type values in vector as object. These values are not needed to typecast.

### ➤ Advantages of Vector

- Vectors can hold Objects of different classes.
- Vectors are synchronous.

### ➤ Disadvantage of Vector

- Vector is Slow

### ➤ Java Vector class Declaration

- ✓ Public class Vector<E>
- ✓ Extends Object<E>
- ✓ Implements List<E>, Cloneable, Serializable

## JAVA VECTOR MCQ's

Q.1 In Java, the Dynamic Array are known as:

- a) Vectors
- b) Cycle
- c) Remote
- d) Kubernotos

**Answer- Vectors**

Q.2 Methods of vector class is?

- a) synchronized
- b) non-synchronized
- c) Both (a) & (b)
- d) None of these

**Answer- synchronized**

Q.3 Vector class is?

- a) Thread-safe
- b) Non-thread safe
- c) Both (a) & (b)
- d) None of these

**Answer- Thread-safe**

Q4 Which of these class object can be used to form a dynamic array?

- a) ArrayList
- b) Vector
- c) Map
- d) ArrayList & Vector

## **Answer- ArrayList & Vector**

**Q.5** Which of these are legacy classes?

- a) Stack
- b) Hashtable
- c) Vector
- d) All of the mentioned

**Answer- All of the mentioned.**

**Q.6** What is the name of a data member of class Vector which is used to store a number of elements in the vector?

- a) length
- b) elements
- c) elementCount
- d) capacity

**Answer- elementCount**

**Q.7** Which of these methods is used to add elements in vector at specific location?

- a) add()
- b) set()
- c) AddElement()
- d) addElement()

**Answer- addElement()**

**Q.8** Which of the following is a valid data structure in java?

- a) Array
- b) List
- c) Vector
- d) All of these

**Answer- All of these**

**Q.9** Which Syntax is valid to create a vector in java?

- a) Vector < string > names = new Vector < String > ();
- b) Vector name = new string;
- c) Int name = new vector ()
- d) All of these

**Answer- a) Vector < string > names = new Vector < String > ();**

**Q.10** Which of the following statements is not correct for vectors in Java?

- a) It was created using vector keyword
- b) It can store an object of different classes
- c) It is asynchronous
- d) None of these

**Answer: c) It is asynchronous**

Q.11 Which of these is the interface of legacy?

- a)Map                                      b)Enumeration
- c)HashMap                                d)Hashtable

**Answer- b) Enumeration**

Q.12 The default capacity of a Vector is:

- a) 10
- b) 12
- c) 8
- d) 16

**Answer- a) 10**

Q.13 The default capacity of a ArrayList is:

- a) 12
- b) 16
- c) 1
- d) 10

**Answer- d) 10**

Q.14 After resizing, size of Vector is increased by:

- a) 200%
- b) 100%
- c) 50%
- d) None of these

**Answer- b) 100%**

Q.15 Which of these is synchronized and isn't sorted by natural order?

- a) EnumSet
- b) LinkedList
- c) Concurrent Skip ListSet
- d) Vector

**Answer- d) Vector**

Q.16 How many types of constructors does Vector class support?

- a) 3
- b) 4
- c) 5
- d) 2**

**Answer-b) 4**

Q.17 Which of the following is the constructor of Vector class?

- a) vector()
- b) vector(int initialcapacity)
- c) vector(Collection<? extends E> c)
- d) All of these

**Answer- d) all of these**

Q.18 Which of the following is not the constructor of Vector class?

- a) vector()
- b) vector(int initialcapacity)
- c) vector(Collection<? extends E> c)
- d) None of these

**Answer- d) None of these**

Q.19 Which constructor does constructs an empty vector with default size as 10?

- a) vector()
- b) Vector()
- c) add()
- d) contains()

**Answer- a) vector()**

Q.20 Which of the method is used to get the current capacity of this vector-

- a) clone()
- b) clear()
- c) capacity()
- d) contains()

**Answer- c) capacity**

Q.21 Which of the method is used to delete all of the elements from this vector-

- a) clone()
- b) clear()
- c) capacity()
- d) contains()

**Answer- b) clear()**

Q.22 Which of the method is used to append the specified element in the given vector-

- a) add()
- b) clear()
- c) addAll()
- d) Add()

**Answer- a) add()**

Q.23 Which of the method is used to append all of the elements in specified collection to end of this vector-

- a) add()
- b) clear()
- c) addAll()
- d) Add()

**Answer- c) addAll()**

Q.24 Which method does return true, if the vector contains the specified element?

- a) clone()
- b) clear()
- c) capacity()
- d) contains()

**Answer- d) contains()**

Q.25 Which method does return true, if the vector contains all of the elements in the specified collection ?

- a) clone()
- b) containsAll()
- c) capacity()
- d) contains()

**Answer- b) containsAll()**

Q.26 Which vector class method is used to get the first component of vector.

- a) add()
- b) containsAll()
- c) firstElement()
- d) FirstElement()

**Answer- c) firstElement()**

Q.27 What is the disadvantage of vector class in java?

- a) Vector is slow
- b) Vector is synchronous
- c) both a & b
- d) None of these

**Answer-a) Vector is slow**

Q.28 What is the advantage of vector class in java?

- a) Vectors can hold Objects of different classes
- b) Vectors are synchronous
- c) both a & b
- d) None of these

**Answer-c) both a & b**

Q.29 Which vector class method is used to delete all the elements from the vector that are present in the specified collection.

- a) removeAll()
- b) RemoveAll()
- c) removeElement()
- d) remove()

**Answer- a) removeAll()**

Q.29 What will be the output of the following Java code?

```
import java.util.*;
class vector
{
    public static void main(String args[])
    {
        Vector obj = new Vector(4,2);
        obj.addElement(new Integer(3));
        obj.addElement(new Integer(2));
        obj.addElement(new Integer(5));
        System.out.println(obj.elementAt(1));
    }
}
```

- a) 0
- b) 3
- c) 2
- d) 5

**Answer: c) 2**

Q.30 What will be the output of the following Java code?

```
import java.util.*;
class vector
{
    public static void main(String args[])
    {
        Vector obj = new Vector(4,2);
        obj.addElement(new Integer(3));
        obj.addElement(new Integer(2));
        obj.addElement(new Integer(5));
        System.out.println(obj.capacity());
    }
}
```

- a) 2
- b) 3
- c) 4
- d) 6

**Answer- c) 4**