Important Question on Vector

Q. what is the default capacity of Vector?

The default capacity of Vector is 10.

Q. what is the load factor in Collection?

The load factor is the measure that decides when to increase the capacity collection.

Example: the load factor of Vector is 1 means 100% means when the capacity of Vector is 100% cross then Vector allocate double memory than its current capacity means Vector increase its capacity 100%.

Q. is Vector is Thread Safe?

Vector is a Thread safe collection because methods of Vector are synchronized so Vector is thread safe.

Q. Is Vector legacy Collection?

Yes Vector is legacy Collection Because Vector is not added in Collection framework before JDK 1.1 but later JDK 1.2 it is added in Collection Framework.

Q. Explain the all constructor of Vector?

 Vector contain 4 types of Constructor

1) Vector():

2) Vector(int initialCapacity)

3) Vector(int initialCapacity,int incrementalSize);

4) Vector(Collection collection);

Vector (): this constructor is used for create the Vector with default capacity provided by Vector and the default capacity of Vector is 10.

Vector (int initialCapacity): this constructor is used for create a vector with a initial capacity provided by user.

Note: if user uses these two constructors and Vector cross its capacity then Vector allocate double memory then its current capacity if user want to set the increment capacity as per his choice then Vector contain third constructor.

Vector (int initialCapacity, int incrementalCapacity): this constructor contain two parameter

int initialCapacity: this parameter is used for set the initialCapacity

int incrementCapacity: this parameter decide how much capacity increment if current capacity cross.

Example

```
import java.util.*;

public class TestVectorApp

{ public static void main(String x[])

    {   Vector   v = new Vector(5,2);

          v.add(100);

          v.add(200);

          v.add(300);

          v.add(400);

          v.add(500);

          v.add(600);

          v.add(700);
```

```
    System.out.println("Now Capacity is  "+v.capacity());

  }

}
```

Q.what is the time complexity?

Time Complexity of an algorithm qualifies amount of time taken by an algorithm to runs a function of the length of input.

Q. what is the time complexity of Vector in Java?

1) Retrieving element from a specific position O(1)

2) Adding and Removing element from the end constant time complexity O(1)

Note: Adding and Removing element from other position is expensive leaner O(n-1) where n is the number of elements and i is the index of element added or removed these operations are more expensive because you have to shift all element at index i and higher over by one element.

Q. how does Vector grow internally in Java ?

A Vector will grow based on its capacity increment value new length of Vector is calculated as given below.

newlength = capacityIncrement==0? existingSize+existingSize: existingSize+capacityIncrement;

Once new size of Vector is calculated Arrays.copyOf (existingArray, newlength) is called the existing array and new length of array passed to the method. This method will create a new array of given length and copy data in to the new array.

Practical Assignment on Vector

Q. WAP to create Vector of integer values and display it using its index.

Output should like as

Index	Value
0	100
1	200
3	300

Q. WAP to create Vector with 10 values and remove value using its index from vector?

e.g. Vector v= new Vector ();

    v.add (10);

    v.add (20);

    v.add (30);

Output like as

Enter the index

2

If index found then show the message value is deleted successfully and if index not found the show message value not deleted

Q. WAP to create a Vector with a 10 floating values and calculate its sum?

Example: Vector v = new Vector ();

            v.add(5.4);

            v.add(2.5);

Output: Sum of Vector is 7.9

Q. WAP to create the vector and store the 10 string values in it and count the character on every index?

Vector v =new Vector ();

  v.add("Good");

  v.add("Bad");

Output should look like

Index	Character Count

0   -------------------- > 4

1 -------------------- > 3

Q. WAP program to create a Vector with Employee Collection with id , name and salary and perform following operation

 1. Add New Employee in Vector

 2. View All Employee

 3. Search Employee by id

 4. Deleted Employee by using its id

 Q. WAP to create a Vector and Store the sentences in Vector and count the word on every index?

Example

Vector   v = new Vector ();

 v.add ("Good Morning India");

v.add ("Good Afternoon India");

v.add ("Good evening India");

Index	Word
0	3
1	3
2	3

Q. WAP to create Vector with a sentence and calculate its word on every index as well as count the number character on every index.

Vector v= new Vector ();

v.add("Good Morning India");

v.add ("Good Morning Pune");

Output

Index	Word Count	Character Count
0	3	18
1	3	18