Vivekanand Education Society's
Institute of Technology
Approved by AICTE & Affiliated to University of Mumbai

Artificial Intelligence and Data Science Department.

OOPM / Odd Sem 2021-22 / Experiment 10.

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EXPERIMENT - 11.

AIM / THEORY: Program to demonstrate built-in StringBuffer Functions. Program to demonstrate built-in functions of Vector Class and collection class (anyone).

Theory:

- Vector is like a dynamic array which can grow or shrink its size
- Unlike an array, we can store a number of elements. as there is no size limit.
- It is a part of java collection framework.
- It is similar to array list, but with 2 differences:
  - * Vector is synchronized.
  - * Java vector contains many legacy methods that are not the part of a collection framework.

* Array List	Vector
① Not synchronized	① Synchronized.
② Increments 50% of current array size if the number of elements exceeds from capacity.	② Increments 100% if the total number of elements exceeds the capacity.
③ Not a Legacy class	③ A legacy class
④ Fast	④ Comparitively slow.
⑤ Uses the iterator interface to traverse the elements.	⑤ Uses the iterator interface or Enumeration interface to traverse elements.

- Five functions of Vector class.

① add() - Append the element in the given vector.

② addElement() - Append the component to the end of this vector. It increases the vector size by one.

③ remove() – Used to remove the specified element from vector. If the vector does not contain the element, it is unchanged.

④ size() – Returns the number of components in the given vector.

⑤ isEmpty() – used to check if the vector has no components.

There are many more functions in vector class that can be used

Program:

```
import java.util.*;
public class Vectors{
        public static void main(String args[]) {
         //Create an empty Vector
         Vector<Integer> in = new Vector<Integer>(7);
         //Add elements in the vector
         in.add(1);
         in.add(2);
         in.add(3);
         in.add(4);
         in.add(5);
         in.add(6);
         in.add(7);
         in.add(8);

         //Display the vector elements
         System.out.println("Values in vector is : " +in);

         //Remove method
         System.out.println("Remove the element 2: "+in.remove((Integer)2));

         //Display the vector
         System.out.println("Values in vector: " +in);

         //Remove the element at index 5
         System.out.println("Remove element at index 5: " +in.remove(5));
         System.out.println("New Value list in vector: " +in);

      //Remove an element
      in.removeElementAt(3);

      //Display the vextor
      System.out.println("Vector after removal: " +in);

      //Get the hashcode for this vector
      System.out.println("Hash code of this vector = "+in.hashCode());

      //Get the element at specified index in vector
      System.out.println("Element at index 1 is = "+in.get(1));
        }
}
```

Output:

```
C:\Users\HP\OneDrive\Desktop\JAVA>java Vectors
Values in vector is : [1, 2, 3, 4, 5, 6, 7, 8]
Remove the element 2: true
Values in vector: [1, 3, 4, 5, 6, 7, 8]
Remove element at index 5: 7
New Value list in vector: [1, 3, 4, 5, 6, 8]
Vector after removal: [1, 3, 4, 6, 8]
Hash code of this vector = 29646083
Element at index 1 is = 3

C:\Users\HP\OneDrive\Desktop\JAVA>
```