

## Code:

```
1 class TestStringBuffer
2 {
3     public static void main(String args[])
4     {
5         StringBuffer stb = new StringBuffer("Hi There");
6         StringBuffer stb2 = new StringBuffer("Hi Java Hi There");
7         System.out.println("Capacity Before trimming: " + stb.capacity());
8         System.out.println("Length Before trimming: " + stb.length());
9         stb.trimToSize();
10        System.out.println("Capacity After trimming, before ensureCapacity():
           ↳ " + stb.capacity());
11        System.out.println("Length After trimming, before ensureCapacity(): "
           ↳ + stb.length());
12        stb.ensureCapacity(30);
13        System.out.println("Capacity after ensureCapacity(), before
           ↳ setLength(): " + stb.capacity());
14        System.out.println("Length after ensureCapacity(), before
           ↳ setLength(): " + stb.length());
15        int length = stb.length();
16        stb.setLength(32);
17        System.out.println("Capacity after setLength(): " + stb.capacity());
18        System.out.println("Length after setLength(): " + stb.length());
19        stb.setLength(length);
20        System.out.println("Deleting First Hi from stb: " +
           ↳ stb.delete(stb.indexOf("Hi"), stb.indexOf("Hi") +
           ↳ "Hi".length()));
21        int indexOfThere = stb.indexOf("There");
22        System.out.println("Before: " + stb + "\nDeleting char \'T\' from
           ↳ stb: " + stb.deleteCharAt(indexOfThere));
23        stb.setCharAt(indexOfThere, 'T');
24        System.out.println("Adding \'T\' back to stb: " + stb);
25        System.out.println("Replacing There with Java in stb: " +
           ↳ stb.replace(indexOfThere, indexOfThere + "There".length(),
           ↳ "Java"));
26        System.out.println("Inserting Hi at the start of stb: " +
           ↳ stb.insert(0, "Hi"));
27        System.out.println("Appending Hi There to stb" + stb.append("Hi
           ↳ There"));
28        System.out.println("Comparing stb with stb2: " + stb.compareTo(stb2));
29        System.out.println("Substring of the stb with portion after last Hi
           ↳ removed: " + stb.substring(stb.lastIndexOf("Hi", stb.length() -
           ↳ 1)));
30        System.out.println("Reverse of stb2: " + stb2.reverse());
31        System.out.println("Finally:\nstb: "+stb +"\nstb2: " + stb2);
32    }
```

```
33 | }
34 | }
```

### Output:

```
Capacity Before trimming: 24
Length Before trimming: 8
Capacity After trimming, before ensureCapacity(): 8
Length After trimming, before ensureCapacity(): 8
Capacity after ensureCapacity(), before setLength(): 30
Length after ensureCapacity(), before setLength(): 8
Capacity after setLength(): 62
Length after setLength(): 32
Deleting First Hi from stb: There
Before: here
Deleting char 'T' from stb: here
Adding 'T' back to stb: Tere
Replacing There with Java in stb: Java
Inserting Hi at the start of stb: Hi Java
Appending Hi There to stbHi JavaHi There
Comparing stb with stb2: 40
Substring of the stb with portion after last Hi removed: Hi There
Reverse of stb2: erehT iH avaJ iH
Finally:
stb: Hi JavaHi There
stb2: erehT iH avaJ iH
```

### Code:

```
1 import java.util.*;
2 class TestVector
3 {
4     public static void main(String args[])
5     {
6         Vector<Integer> vec = new Vector<Integer>();
7         System.out.println("\tCapacity of vec: " + vec.capacity());
8         System.out.println("\tSize of vec: " + vec.size());
9         vec.trimToSize();
10        System.out.println("After trimToSize(): ");
11        System.out.println("\tCapacity of vec: " + vec.capacity());
12        System.out.println("\tSize of vec: " + vec.size());
13        for(int i = 1; i <= 10; i++)
14        {
15            vec.add(i);
16        }
17        System.out.println("After Adding Elements: ");
18        System.out.println("\tCapacity of vec: " + vec.capacity());
19        System.out.println("\tSize of vec: " + vec.size());
20        System.out.println(vec);
```

```

21     vec.ensureCapacity(30);
22     System.out.println("After ensureCapacity(30): ");
23     System.out.println("\tCapacity of vec: " + vec.capacity());
24     System.out.println("\tSize of vec: " + vec.size());
25     vec.setSize(15);
26     System.out.println("After setSize(15): ");
27     System.out.println("\tCapacity of vec: " + vec.capacity());
28     System.out.println("\tSize of vec: " + vec.size());
29     for(int i = 0; i <= 9; i++)
30     {
31         vec.set(i, 10 + (i % 2));
32     }
33     System.out.println("Setting all elemnts in the Vector to a
    ↳ different value: ");
34     for(int i = 0; i <= 14; i++)
35     {
36         System.out.print(vec.elementAt(i) + " ");
37     }
38     System.out.printf("\n");
39     System.out.println("First Element of the Vector: " +
    ↳ vec.firstElement());
40     System.out.println("Index of first occurence of 11: "+
    ↳ vec.indexOf(11));
41     System.out.println("Index of first occurence of 11 after index 4:
    ↳ "+vec.indexOf(11, 4));
42     System.out.println("Last Element of the Vector: " +
    ↳ vec.lastElement());
43     System.out.println("Index of last occurence of 11: "+
    ↳ vec.lastIndexOf(11));
44     System.out.println("Index of last occurence of 11 before index 8:
    ↳ "+ vec.lastIndexOf(11, 8));
45     System.out.println("Initially: " + vec);
46     vec.removeElement(null);
47     System.out.println("Vector after removing a null element\n" +
    ↳ vec);
48     Vector<Integer> vec1 = new Vector<Integer>();
49     vec1.add(null);
50     vec.removeAll(vec1);
51     System.out.println("Vector after removing all null elements\n" +
    ↳ vec);
52     vec.insertElementAt(11, 5);
53     System.out.println("Vector after inserting 11 at index 5
    ↳ elements\n" + vec);
54     vec.clear();
55     System.out.println("Vector after vec.clear()\n" + vec);
56     System.out.println("The Vector is Empty: " + vec.isEmpty());
57     System.out.println("The Vector contains 11: " + vec.contains(11));

```

```
58 |     }
59 | }
```

### Output:

```
Capacity of vec: 10
Size of vec: 0
After trimToSize():
Capacity of vec: 0
Size of vec: 0
After Adding Elements:
Capacity of vec: 16
Size of vec: 10
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
After ensureCapacity(30):
Capacity of vec: 32
Size of vec: 10
After setSize(15):
Capacity of vec: 32
Size of vec: 15
Setting all elemnts in the Vector to a different value:
10 11 10 11 10 11 10 11 10 11 null null null null null
First Element of the Vector: 10
Index of first occurence of 11: 1
Index of first occurence of 11 after index 4: 5
Last Element of the Vector: null
Index of last occurence of 11: 9
Index of last occurence of 11 before index 8: 7
Initially: [10, 11, 10, 11, 10, 11, 10, 11, 10, 11, null, null, null, null, null]
Vector after removing a null element
[10, 11, 10, 11, 10, 11, 10, 11, 10, 11, null, null, null, null]
Vector after removing all null elements
[10, 11, 10, 11, 10, 11, 10, 11, 10, 11]
Vector after inserting 11 at index 5 elements
[10, 11, 10, 11, 10, 11, 11, 10, 11, 10, 11]
Vector after vec.clear()
[]
The Vector is Empty: true
The Vector contains 11: false
```