Ex.no:12 **GENERIC PROGRAMMING**

Date:

AIM:

To write and implement the given programs using java.

12a) WRITE A JAVA PROGRAM TO PERFORM THE FOLLOWING OPERATIONS ON AN ARRAY USING GENERIC CLASSES
***ADD AN ELEMENT IN THE BEGINNING/MIDDLE/END**
***DELETE AN ELEMENT FROM A GIVEN POSITION**
b)WRITE A JAVA PROGRAM TO FIND THE MAXIMUM VALUE FROM THE GIVEN TYPR OF ELEMENTS USING A GENERIC FUNCTION

ALGORITHM:

Step 1: start

Step 2: Create a package OOPS

Step 3create a generic class array with the valueT and display its value using foe loop

Step4: In the insert method using array position insert the elements using for loop. Using for loop and if condition delete the array elements using array position

Step 5: In the main method create objects and call the methods created

Step 6: Print the inserted and deleted elements.

Step 9: Stop
PROGRAM:

```
package oops;

import java.util.*;

public class genericClass {

   public static void main(String[] args) {

      Scanner s = new Scanner(System.in);

      System.out.println("Enter the size of the array:");
```

```
        int n = s.nextInt();
        Integer a[] = new Integer[n + 1];
        System.out.println("Enter the elements");
        for (int i = 0; i < n; i++) {
            a[i] = s.nextInt();
        }
        array<Integer> obj = new array<>(a);
        obj.display();
        System.out.println("Enter the element to be inserted:");
        int b = s.nextInt();
        obj.insert(b);
        System.out.println("Enter the element to be deleted:");
        int c = s.nextInt();
        obj.delete(c);
    }
}

class array<T> {
    T[] value;
    int temp;
    array(T[] value) {
        this.value = value;
    }
    void display() {
        System.out.println("The elements are:");
        for (int i = 0; i < value.length - 1; i++) {
            System.out.println(value[i]);
        }
```

```
}
void insert(T n) {
    Scanner s = new Scanner(System.in);
    System.out.println("Enter the position to be inserted:");
    int pos = s.nextInt();
    for (int i = value.length - 2; i >= pos - 1; i--) {
        value[i + 1] = value[i];
    }
    value[pos - 1] = n;
    System.out.println("The elements are:");
    for (int i = 0; i < value.length; i++) {
        System.out.println(value[i]);
    }
}

void delete(T n) {

    int pos;
    for (int i = 0; i <= value.length-1; i++) {
        if (value[i] == n) {
            pos = i;
            for (int j = pos; j < value.length-1; j++) {
                value[j] = value[j + 1];
            }
        }
    }
    System.out.println("The elements are:");
    for (int i = 0; i < value.length; i++) {
```

```
            System.out.println(value[i]);
        }
    }
}
```

OUTPUT:

```
Enter the size of the array:
4
Enter the elements
2
3
4
5
The elements are:
2
3
4
5
Enter the element to be inserted:
6
Enter the position to be inserted:
2
The elements are:
2
6
3
4
5
Enter the element to be deleted:
```

4

The elements are:

2

6

3

5

5

12b) ALGORITHM:

STEP 1: start

STEP 2:declare the elements of the array

STEP 3:initialise the string elements and double values

STEP 4: In class findmax T value extends comparable

STEP 5:using compareTo method find the maximum of the type of elements

STEP 6:stop

PROGRAM:

```
package generics1;
import java.util.*;
public class GenericFunction
{
   public static void main(String[]args)
   {
      Integer a[]={2,5,6,9};
      String s []={"world","ant","zebra"};
      Double d[]={22.21,34.15,67.33};
      findmax obj=new findmax();
      obj.max(a);
      obj.max(s);
      obj.max(d);
```

```
   }
}
class findmax
 {
   <T extends Comparable <T>> void max (T[] a)
    {
      T max;
      max=a[0];
      for(int i=1;i<a.length;i++)
       {
         if(max.compareTo(a[i])<0)
        {
           max=a[i];
        }
       }
    System.out.println("The maximum number in the array "+ max);
   }
 }
```

OUTPUT:

The maximum number in the array 9

The maximum number in the array zebra

The maximum number in the array 67.33

Observation(20)	
Record(5)	
Total(25)	
Initial	

RESULT: Thus the programs are written and executed successfully