



## LAB EXAM

### Concepts of Programming & Operating System

Total Marks: 10

Time: 1 hour

Name : Funde Pandurang Gahininath

1. Write a program to insert an element at a specified position into an array, without the loss of any values. The program should not throw exception, if the array is currently full. Instead, it should omit the last element of the array and shift all numbers to insert the element in the specified position.

```
package com.labexam.main;

import java.io.*;
import java.lang.*;
import java.util.*;

public class Labexam {

    public static int[] addX(int n, int arr[], int x)
    {

        int i;

        int newarr[] = new int[n + 1];

        for (i = 0; i < n; i++)

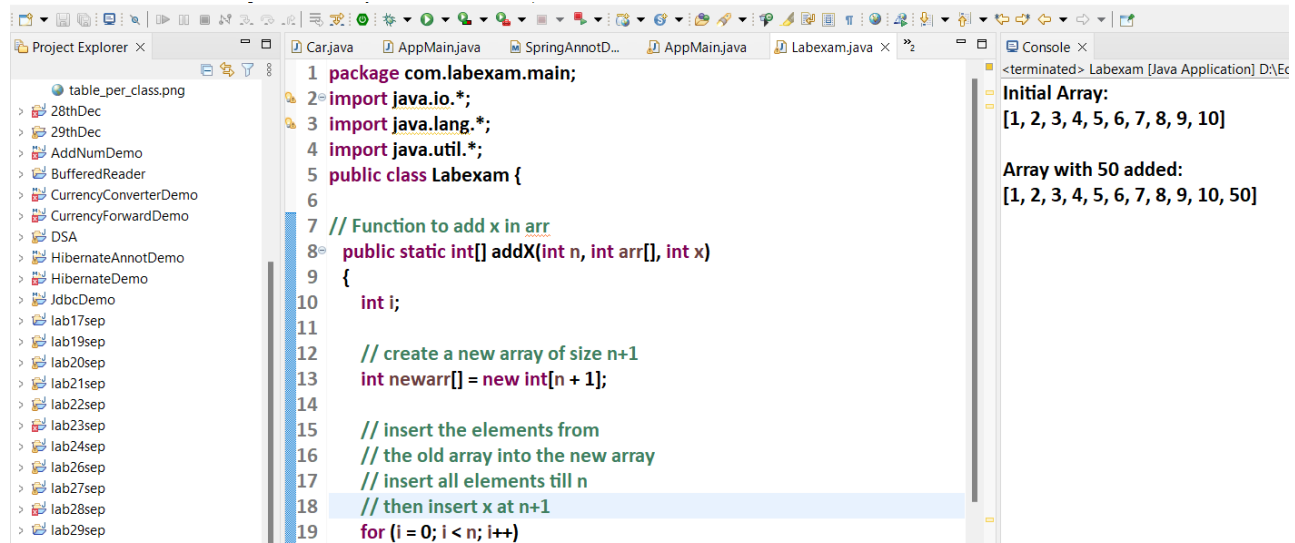
            newarr[i] = arr[i];

        newarr[n] = x;

        return newarr;
```

```
}  
  
public static void main(String[] args)  
{  
  
    int n = 10;  
  
    int i;  
  
    int arr[]  
    = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 };  
  
    System.out.println("Initial Array:\n"  
        + Arrays.toString(arr));  
  
    int x = 50;  
  
    arr = addX(n, arr, x);  
  
    System.out.println("\nArray with " + x  
        + " added:\n"  
        + Arrays.toString(arr));  
  
}  
  
}
```

## Output:



The screenshot shows an IDE with the following components:

- Project Explorer:** A list of files and folders on the left, including 'table\_per\_class.png', '28thDec', '29thDec', 'AddNumDemo', 'BufferedReader', 'CurrencyConverterDemo', 'CurrencyForwardDemo', 'DSA', 'HibernateAnnotDemo', 'HibernateDemo', 'JdbcDemo', 'lab17sep', 'lab19sep', 'lab20sep', 'lab21sep', 'lab22sep', 'lab23sep', 'lab24sep', 'lab26sep', 'lab27sep', 'lab28sep', and 'lab29sep'.
- Editor:** The main window displays the code for 'Labexam.java'. The code is as follows:

```
1 package com.labexam.main;
2 import java.io.*;
3 import java.lang.*;
4 import java.util.*;
5 public class Labexam {
6
7     // Function to add x in arr
8     public static int[] addX(int n, int arr[], int x)
9     {
10         int i;
11
12         // create a new array of size n+1
13         int newarr[] = new int[n + 1];
14
15         // insert the elements from
16         // the old array into the new array
17         // insert all elements till n
18         // then insert x at n+1
19         for (i = 0; i < n; i++)
```
- Console:** The output window on the right shows the following text:

```
<terminated> Labexam [Java Application] D:\Ec
Initial Array:
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Array with 50 added:
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 50]
```

2. Write a C program to create a Zombie process.

```
GNU nano 6.4 q2.c
#include <stdio.h>
#include <sys/wait.h>
#include <stdlib.h>
#include <unistd.h>
void main()
{
    pid_t id;
    id = fork();
    if(id>0)
    {
        printf("Parent Executing \n");
        sleep(5);
        wait(NULL);
        printf("Parent finished \n");
    }
    else
    {
        printf("Child finished \n ");
        exit(0);
    }
}
```

```
(kali@kali)-[~/Lab13Dec]
$ ./q2
Parent Executing
Child finished

Parent finished
```

\*\*\*\*\*