14.08.24

Assignment:-6 (Array)

Date
Page No.

1 write a java program to sort a integer array using insertion sort.
Input: [100, 20, 30, 10, 50]
output: [10, 20, 30, 50, 100]

2 write a java program to calculate the average value of array elements.
Input: [1, 2, 3, 4, 5]
output: The average of array elements is 3.

3 write a java program to find the maximum and minimum value of an array.
Input: [25, 14, 56, 15, 36, 56, 77, 18, 29, 49]
output: maximum value for the above array: 77
minimum value for the above array: 14

4 write a java program to find duplicate value in an array of integer values.
Input: [1, 2, 5, 5, 6, 6, 7, 2]
output: Duplicate Element: 2
Duplicate Element: 5
Duplicate Element: 6

5 write a java program to find common element between two arrays (String values).
Input: Array 1: [Python, Java, C++, SQL]
Array 2: [MySQL, SQL, Oracle, JAVA]

output: common element is: [Java, SQL]

Date
Page No.

```
import java.lang.*;
import java.util.*;
public class Sorting{
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the number of data to be entered into the array :- ");
        int arr[] = new int [sc.nextInt()];
        System.out.println("Enter the values into the array:");
        for(int i=0; i<arr.length; i++){
            arr[i] = sc.nextInt();
        }
        System.out.print("The original array is :- [ ");
        for(int i=0; i<arr.length; i++){
            System.out.print(arr[i]);
            if(i != arr.length-1){
                System.out.print(", ");
            }
        }
        System.out.println("]");

        System.out.print("Sorted array (Insertion sort):- [");
        int j, temp;
        for(int i=0; i<arr.length; i++){
            j = i-1;
            temp = arr[i];
            while(j>=0 && arr[j]>temp){
                arr[j+1] = arr[j];
                j--;
            }
            arr[j+1] = temp;
        }
```

```
        for(int i=0; i<arr.length; i++){
            System.out.print(arr[i]);
            if(i!=arr.length-1){
                System.out.print(", ");
            }
        }
        System.out.println("]");
        sc.close();
    }
}
```

output:-

Enter the number of data to be entered into the array:-
5
Enter the values into the array:-
100 20 30 10 50
The original array is:- [100, 20, 30, 10, 50]
Sorted array (Insertion Sort):- [10, 20, 30, 50, 100]

(2)
```
import java.lang.*;
import java.util.*;
public class Average{
    public static void main(String args[]){
        Scanner sc=new Scanner(System.in);

        System.out.println("Enter the number of data
                to be entered into the array:-");
        int arr[]=new int[sc.nextInt()];
        System.out.println("Enter the values into
                the array:-");
        for(int i=0; i<arr.length; i++){
            arr[i]=sc.nextInt();
        }
```

```
        System.out.print("The original array is: [");
        for(int i=0; i<arr.length; i++){
            System.out.print(arr[i]);
            if(i != arr.length-1){
                System.out.print(", ");
            }
        }
        System.out.println("]");
        int sum = 0;
        for(int i : arr){
            sum += i;
        }
        int average = sum/arr.length;
        System.out.println("The average of array
                            elements is "+ average);
        sc.close();
    }
}
```

output:-

Enter the number of data to be entered into the array:-
5
Enter the values into the array:-
1 2 3 4 5
~~original array is~~
The original array is :- [1, 2, 3, 4, 5]
The average of array element is 3

Date
Page No.

~~import java.lang.*;~~

③ import java.io.*;
Public class MaxAndMin {
    public static void main(String args[]) throws IOException {
        BufferedReader br = new BufferedReader(new
                InputStreamReader(System.in));
        System.out.println("Enter the number of data to be
                entered into the array :- ");
        int arr[] = new int [Integer.parseInt(br.readLine())];
        System.out.println("Enter the values into the array:-");
        for (int i=0; i<arr.length; i++) {
            arr[i] = Integer.parseInt(br.readLine());
        }
        System.out.print("The original array is :- [");
        for (int i=0; i<arr.length; i++) {
            System.out.print(arr[i]);
            if (i != arr.length-1) {
                System.out.print(", ");
            }
        }
        System.out.println("]");

        int min=arr[0], max=arr[0];
        for (int i:arr) {
            if (i > max) max = i;
            if (i < min) min = i;
        }
        System.out.println("maximum value for the above
                array = "+max);
        System.out.println("minimum value for the above
                array = "+min);
    }
}

④

Date
Page No.

output:-
Enter the number of data to be entered into the array:
10
Enter the values into the array:-
25
14
56
15
36
56
77
18
29
49
The original array is:- [25, 14, 56, 15, 36, 56, 77, 18, 29, 49]
maximum value for the above array = 77
minimum value for the above array = 14

(4)
```
import java.lang.*;
import java.io.*;
public class Duplicate {
    public static void main (String args[]) throws IOException {
        BufferedReader br = new BufferedReader (new
                InputStreamReader (System.in));
        System.out.println("Enter the number of data to be
                entered into the array:- ");
        int arr[] = new int [Integer.parseInt(br.readLine())];
        System.out.println("Enter the values into the array:-");
        for (int i=0; i<arr.length; i++) {
            arr[i]= Integer.parseInt(br.readLine());
        }
```

Date
Page No.

```
System.out.print("the original array is :-[");
for(int i=0; i<arr.length; i++){
    System.out.print(arr[i]);
    if(i != arr.length-1) {
        System.out.print(", ");
    }
}
System.out.println("]");

int dupArr[] = new int[arr.length];
int idx=0;
for(int i=0; i<arr.length; i++){
    boolean flag= false;
    for(int j=0; j< idx; j++) {
        [redacted]
        if (arr[i] == dupArr[j]) {
            flag= true;
            break;
        }
    }
    if (flag) continue;
    for(int k= i+1; k< arr.length; k++){
        if (arr[i] ==arr[k]) {
            dupArr[idx++] = arr[i];
            break;
        }
    }
}
```

```
        int j, temp;
        for (int i=0; i< idx ; i++) {
            j = i-1;
            temp = dupArray[i];
            while (j >=0 && dupArray[j] > temp) {
                dupArray[j+1] = dupArray[j];
                j--;
            }
            dupArray[j+1] = temp;
        }
        if(idx==0) {
            System.out.println("No duplicate elements found.");
        }else {
            for(int i=0; i<idx ; i++) {
                System.out.println("Duplicate Element:"+
                    dupArray[i]);
            }
        }
    }
}
```

output:-

Enter the number of data to be entered into the array:-
8
Enter the values into the array:-
1
2
5
5
6
6
7
2

Date
Page No.

The original array is :- [1, 2, 5, 5, 6, 6, 7, 2]
Duplicate Element : 2
Duplicate Element : 5
Duplicate Element : 6

```
import java.lang.*;
import java.util.*;
public class common {
    public static void main (String args[]){
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter the number of
            data to be entered into first array:-");
        String array1[] = new String [sc.nextInt()];
        System.out.println("Enter the values into
                first array :-");
        for(int i=0; i<array1.length ; i++){
            array1[i] = sc.next();
        }
        System.out.print ("the first array is :-[");
        for(int i=0; i<array1.length ; i++){
            System.out.print (array1[i]);
            if (i != array1.length-1){
                System.out.Print (", ");
            }
        }
        System.out.println ("]");

        System.out.println ("Enter the number of data
            to be entered into second array:-");
        String array2[] = new String [sc.nextInt()];
        System.out.println ("Enter the values into
                second array:-");
```

Date
Page No.

```
for (int i=0; i<array2.length; i++) {
    array2[i] = sc.next();
}
System.out.print("The second array is :- [");
for (int i=0; i<array2.length; i++) {
    System.out.print(array2[i]);
    if (i != array2.length-1) {
        System.out.print(", ");
    }
}
System.out.println("]");

String array3[] = new String[(array1.length < array2.length)? array1.length : array2.length];
int idx=0;
for (String s1 : array1) {
    for (String s2 : array2) {
        if (s1.equals(s2)) {
            array3[idx++] = s1;
            break;
        }
    }
}
System.out.print("The common elements are :- [");
for (int i=0; i<idx; i++) {
    System.out.print(array3[i]);
    if (i != idx-1) {
        System.out.print(", ");
    }
}
System.out.println("]");
sc.close();
}
}
```

output:-

Enter the number of data to be entered into first array :-

4

Enter the values in-to first array :-

Python java c++ sql

The first array is :- [Python, java, c++, sql]

Enter the number of data to be entered into second array :-

4

Enter the values into second array :-

mysql sql oracle java

The second array is :- [mysql, sql, oracle, java]

The common elements are :- [java, sql]