OOPs using JAVA, Lab3
Assignment-3

1. Write a JAVA program to replace every element with the next greatest element, from right side, in a given array of integers. Replace the last element with itself.
   Sample output:

```
Original Array
[45, 20, 100, 23, -5, 2, -6]
The modified array:
[100, 100, 23, 2, 2, -6, -6]
```

2. Write a Java program to separate even and odd numbers of a given array of integers. Put all even numbers first, and then odd numbers.
   Sample output:

```
Original Array: [5, 7, 2, 4, 9]
Number of even numbers : 2
Number of odd numbers  : 3
The modified array:[2,4,5,7,9]
```

3. Write a Java program to find the maximum and minimum value of an array.
   Sample output:

```
Original Array: [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. Write a Java program to sort an array of positive integers such that in the sorted array the value of the first element should be maximum, second value should be minimum value, third should be second maximum, fourth second be second minimum and so on.
   Sample output:

```
Original Array:[25, 14,56, 15, 36, 56, 77, 18, 29,49]
Modified array:[77,14, 56, 15, 56, 18, 49, 25, 36,29]
```

5. Write a Java program to arrange the elements of a given array of integers where all positive integers appear before all the negative integers.
   Sample output:

```
Original Array: [25, -14, -56, 15, -36, 56, 77, -18, 29, 49]
Modified Array: [25, 15, 56, 77, 29, 49, -14, -56, -36, -18]
```

6. Write a Java program to cyclically rotate a given array clockwise by number of times entered from keyboard.
   Sample output:
   // rotate clockwise by : 2

```
Original Array: [25, -14, -56, 15, -36]
Rotated Array: [15, -36, 25, -14, -56]
```

7. Write a Java program to add two matrices of the same size.
8. Write a Java program to multiply two matrices of compatible sizes i.e. Multiply (A(i,j) & B(j,k))
9. Write a JAVA program which will read a text and count all occurrences of a particular word.

10. Write a JAVA program to take a string as an input and output another string where the input words are arranged in alphabetical order.
11. Write a Java program to find the maximum and minimum value of an array.

Sample output:

```
Original Array: [25, 14, 56, 15, 36, 56, 77, 18, 29, 49]
Maximum value for the above array = 77
Minimum value for the above array = 14
```

12. Write a Java program to find the second largest and second smallest element in an array.
13. Write a Java program to reverse an array of integer values.

Sample output:

```
Original array : [1789, 2035, 1899, 1456, 2013, 1458, 2458, 1254, 1472,
2365, 1456, 2165, 1457, 2456]
Reverse array : [2456, 1457, 2165, 1456, 2365, 1472, 1254, 2458, 1458,
2013, 1456, 1899, 2035, 1789]
```

14. Write a Java program to find the duplicate values of an array of string values.

Sample output:

Input_array = {"bcd", "abd", "jude", "bcd", "oiu", "gzw", "oiu"};

```
Duplicate Element is : bcd
Duplicate Element is : oiu
```

15. Write a Java program to find the common elements between two arrays (string values).

```
16. Array1 : [Python, JAVA, PHP, C#, C++, SQL]
17. Array2 : [MySQL, SQL, SQLite, Oracle, PostgreSQL, DB2, JAVA]
18. Common element is : [JAVA, SQL]
```

19. Write a Java program to remove duplicate elements from an array.

Sample output:

```
Original Array :
0        3         -2        4         3        2
Array with unique values :
0        3         -2        4         2
--------------------------
Original Array :
10       22        10        20        11       22
Array with unique values :
10       22        11        20
--------------------------
```

20. Write a Java program to print all the LEADERS in the array.
Note: An element is leader if it is greater than all the elements to its right side.
Sample output:

```
Input array: [10, 9, 14, 23, 15, 0, 9]
LEADERS: 23 15 9
```

21. Write a Java program to test the equality of two arrays.

Sample output:

```
Array1=[2, 5, 7, 9, 11]
Array2=[2, 5, 7, 8, 11]
Two arrays are not equal.
Array1=[21, 5, 27, 9, 11]
Array2=[21, 5, 27, 9, 11]
Two arrays are equal.
```

22. Write a Java program to insert an element (specific position) into an array.

Sample output:

```
// Insert an element in 3rd position of the array (index->2, value->5)
```

```
Original Array: [25, 14, 56, 15, 36, 56, 77, 18, 29, 49]
New Array: [25, 14, 5, 56, 15, 36, 56, 77, 18, 29]
```