

**EXPERIMENT LIST FOR PROGRAMMING ABILITY AND LOGIC  
BUILDING – 2**

**NAME : Ikshu Goel**

**BATCH : 2CSE5**

**ROLL NUMBER :**

**2410030774**

**WEEK : 19/1/26 -**

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# EXPERIMENT 1

You are given an array of integers arr[]. You have to reverse the given array. Note:

Modify the array in place.

## EXAMPLE

INPUT arr = [1, 4, 3, 2, 6, 5] OUTPUT[5, 6, 2, 3, 4, 1] Explanation: The

The screenshot shows a web-based IDE interface for solving a problem titled "Reverse an Array | Practice". The URL is [geeksforgeeks.org/problems/reverse-an-array/1](https://geeksforgeeks.org/problems/reverse-an-array/1). The code area contains the following Java code:

```
1+ class Solution {
2-     void reverseArray(int[] arr) {
3-         int i = 0, j = arr.length - 1;
4-         while (i < j) {
5-             int temp = arr[i];
6-             arr[i] = arr[j];
7-             arr[j] = temp;
8-             i++;
9-             j--;
10-        }
11-    }
12-}
```

The "Output Window" shows the following results:

- Compilation Results: Compilation Completed
- Input: arr[] = 1 2 3 4
- Your Output: [4, 3, 2, 1]
- Expected Output: [4, 3, 2, 1]

At the bottom right, there are buttons for "Custom Input", "Compile & Run", and "Submit".

elements of the array are [1, 4, 3, 2, 6, 5]. After reversing the array, the first element goes to the last position, the second element goes to the second last position and so on. Hence, the answer is [5, 6, 2, 3, 4, 1].

## EXPERIMENT 2

Given an array arr[]. Your task is to find the minimum and maximum elements in the array.

Examples:

The screenshot shows a Java code editor interface. The code is a Java program named Solution that defines a method getMinMax which takes an integer array arr as input. The program initializes two variables, min and max, to the first element of the array. It then iterates through the array from index 1 to arr.length - 1, comparing each element with the current min and max. If an element is smaller than min, it becomes the new min. If an element is larger than max, it becomes the new max. Finally, it creates an ArrayList res, adds min and max to it, and returns res. The code editor includes tabs for Output Window, Compilation Results, and Custom Input. The compilation results show that the code has completed successfully. The input field contains the array [1, 4, 3, 5, 8, 6]. The output field shows the expected result [1, 8].

```
1+ class Solution {  
2-     ArrayList<Integer> getMinMax(int[] arr) {  
3-         int min = arr[0];  
4-         int max = arr[0];  
5-  
6-         for (int i = 1; i < arr.length; i++) {  
7-             if (arr[i] < min)  
8-                 min = arr[i];  
9-             if (arr[i] > max)  
10-                max = arr[i];  
11-        }  
12-  
13-        ArrayList<Integer> res = new ArrayList<>();  
14-        res.add(min);  
15-        res.add(max);  
16-        return res;  
17-    }  
18-}  
19-
```

Input: arr[] = [1, 4, 3, 5, 8, 6]  
Output: [1, 8]  
Explanation: minimum and maximum elements of array are 1 and 8.

## EXPERIMENT 3

Given an integer array arr[] and an integer k, your task is to find and return the kth smallest element in the given array.

Note: The kth smallest element is determined based on the sorted order of the array.

Examples :

The screenshot shows a Java code editor interface. The code is as follows:

```
1 import java.util.Arrays;
2
3 class Solution {
4     public int kthSmallest(int[] arr, int k) {
5         Arrays.sort(arr);
6         return arr[k - 1];
7     }
8 }
```

The code is annotated with line numbers from 1 to 9. The editor has tabs for Java (21), Start Timer, and a file icon. Below the code, there's a 'Compilation Completed' section with a 'Case 1' tab. The input field contains 'arr[] = 7 10 4 3 20 15' and 'k = 3'. The output field shows 'Your Output: 7' and 'Expected Output: 7'. At the bottom right are buttons for 'Custom Input', 'Compile & Run', and 'Submit'.

Input: arr[] = [10, 5, 4, 3, 48, 6, 2, 33, 53, 10], k = 4  
Output: 5  
Explanation: 4th smallest element in the given array is 5.

## EXPERIMENT 4

You are given two arrays  $a[]$  and  $b[]$ , return the Union of both the arrays in any order.

The Union of two arrays is a collection of all distinct elements present in either of the arrays. If an element appears more than once in one or both arrays, it should be included only once in the result.

Note: Elements of  $a[]$  and  $b[]$  are not necessarily distinct. Note that, You can return the Union in any order but the driver code will print the result in sorted order only.

Examples:

Input:  $a[] = [1, 2, 3, 2, 1]$ ,  $b[] = [3, 2, 2, 3, 3, 2]$  Output:  $[1, 2, 3]$  Explanation: Union set of both the arrays will be 1, 2 and 3.

The screenshot shows a Java code editor interface on a web browser. The title bar indicates the page is "geeksforgeeks.org/problems/union-of-two-arrays3538/1". The main area displays a Java code snippet for finding the union of two arrays using a HashSet:

```
1+ import java.util.*;
2
3- class Solution {
4-     public static ArrayList<Integer> findUnion(int[] a, int[] b) {
5-         HashSet<Integer> set = new HashSet<>();
6
7-         for (int x : a)
8-             set.add(x);
9
10-        for (int x : b)
11-            set.add(x);
12
13-        ArrayList<Integer> res = new ArrayList<>();
14-        for (int x : set)
15-            res.add(x);
16
17-        return res;
18    }
19 }
20
```

The code editor includes a "Start Timer" button, a "Java (21)" dropdown, and various tool icons. On the left, there's an "Output Window" section showing "Compilation Completed" and "Case 1" results. The input fields show `a[] = [1 2 3 4 5]` and `b[] = [1 2 3]`. The "Your Output:" field contains `[1, 2, 3, 4, 5]`, which matches the "Expected Output:" field.

## EXPERIMENT 5

Given an array arr[]. The task is to find the largest element and return it. Examples:

Input: arr[] = [1, 8, 7, 56, 90]  
Output: 90  
Explanation: The largest element of the given array is 90.

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```
1 * class Solution {  
2 *     public int largest(int[] arr) {  
3 *         int max = arr[0];  
4 *         for (int i = 1; i < arr.length; i++) {  
5 *             if (arr[i] > max)  
6 *                 max = arr[i];  
7 *         }  
8 *     }  
9 *     return max;  
10 * }  
11 *
```

Output Window

Compilation Results Custom Input

**Compilation Completed**

Case1

Input: (0  
or)=

1875690

Your Output:

90

Expected Output:

90

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