Union of Two Arrays

Example:

```
arr1[] = {7, 1, 5, 2, 3, 6}
arr2[] = {3, 8, 6, 20, 7}
```

Then your program should print Union as {1, 2, 3, 5, 6, 7, 8, 20}.

Method: (Using map data structure)

From the knowledge of data structures, we know that map stores distinct keys only. So if we insert any key appearing more than one time it gets stored only once. The idea is to insert both the arrays in one common map which would then store the distinct elements of both arrays (union of both the array).

Below is the implementation of the above method:

C++ Java

```
// Java program for the union of two arrays using Set
import java.util.*;

class GFG {
```

```
static void getUnion(int a[], int n, int b[], int m)
{
    // find min of n and m
    int min = (n < m) ? n : m;

    // set container
    Set<Integer> set = new HashSet<>();

    // add elements from both the arrays for
    // index from 0 to min(n, m)-1
    for (int i = 0; i < min; i++) {
        set.add(a[i]);
        set.add(b[i]);
    }

    // add remiaining elements to the set from the other
    // array (having greater length)
    // note that only one of the loops will execute
    if (n > m) {
        for (int i = m; i < n; i++) {
            set.add(a[i]);
        }
    }
    else if (n < m) {
        for (int i = n; i < m; i++) {
            set.add(b[i]);
        }
    }
```

```
        // driver code to print the output
        System.out.println(
            "The union set of both arrays is :");
        System.out.print(set.toString());
    }
    // Driver Code
    public static void main(String[] args)
    {
        int a[] = { 1, 2, 5, 6, 2, 3, 5, 7, 3 };
        int b[] = { 2, 4, 5, 6, 8, 9, 4, 6, 5, 4 };

        getUnion(a, 9, b, 10);
    }
}

// This code is contributed by Parth Malhotra
```

Output

```
The union set of both arrays is :
1 2 3 4 5 6 8 9
```

Time Complexity: O(m * log(m) + n * log(n)), for using map data structure.
Auxiliary Space: O(m + n)

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