

# COMPETITIVE PROGRAMMING

## PROBLEM 2:

FINDING DUPLICATES- $O(N)$  TIME COMPLEXITY, $O(1)$  SPACE COMPLEXITY

AIM:

Find Duplicate in Array.

Given a read only array of  $n$  integers between 1 and  $n$ , find one number that repeats.

CODE:

```
#include <stdio.h>

#include<stdlib.h>

int main() {

    int n;

    scanf("%d", &n);

    int arr[n];

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

    {

        scanf("%d", &arr[i]);

    }

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

    {

        int index = abs(arr[i]) - 1;

        if (arr[index] < 0)

        {
```

```

        printf("%d ", abs(arr[i]));

    } else

    {

        arr[index] = -arr[index];

    }

}

return 0;

}

```

INPUT AND OUTPUT:

	Input	Expected	Got	
✓	11 10 9 7 6 5 1 2 3 8 4 7	7	7	✓
✓	5 1 2 3 4 4	4	4	✓
✓	5 1 1 2 3 4	1	1	✓