

rray except self

teger array `nums`, return an array `answer` such that `answer[i]` is equal to the product of all the elements of `nums` except `nums[i]`.  
rite an algorithm that runs in  $O(n)$  time and without using the division operation.  
lve the problem in  $O(1)$  extra space complexity? (The output array does not count as extra space for space complexity analysis.)

mat

onsists of multiple testcases.  
e of input contains an integer `t` - the number of testcases.  
ng  $2 * t$  lines contain the description of the `t` testcases.  
e of each testcase contains an integer `n` - the size of the array.  
f line of each testcase contains `n` space-separated integers `nums[1], nums[1], ... nums[i] .., nums[n]`

its

`<= 10^3`  
`ms.length <= 10^5`  
`nums[i] <= 30`

ormat

stcase output the `n` integers, where `n` is the size of the array of that testcase, where the `ith` ( $1 \leq i \leq n$ ) integer is the product of the array except for the `ith` elem

It 1

Sample Output 1

```
24 12 8 6
0 0 9 0 0
```

se

```
ms[2]*nums[3]*nums[4] = 24
ms[1]*nums[3]*nums[4] = 12
ms[1]*nums[2]*nums[4] = 8
ms[1]*nums[2]*nums[3] = 6
```

```
function solve(n,nums){

    let answer = [];
    let left = 1;
    let right = 1;

    for (let i = 0; i < nums.length; i++) {
        answer[i] = left;
        left *= nums[i];
    }

    for (let i = nums.length - 1; i >= 0; i--) {
        answer[i] *= right;
        right *= nums[i];
    }

    return answer;
}
```

```
runProgram=(input) =>{
    input=input.trim().split("\n")
    let tc=+input[0];
    let line=1;
    for(let i=0;i<tc;i++){
        let n=+input[line++];
        let arr=input[line++].trim().split(" ").map(Number);
        let ans=solve(n,arr)
        console.log(ans.join(" "))
    }
}
```

```
process.env.USER === "") {
  runProgram(``);
}
```

```
process.stdin.setEncoding("ascii");
+ read - "".
```

n input

Run Code

f the problem

led

Masai School

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