

# Maximum Subarray Sum ★

- Problem
- Submissions
- Leaderboard
- Editorial
- Topics

We define the following:

- A subarray of array  $a$  of length  $n$  is a contiguous segment from  $a[i]$  through  $a[j]$  where  $0 \leq i \leq j < n$ .
- The sum of an array is the sum of its elements.

Given an  $n$  element array of integers,  $a$ , and an integer,  $m$ , determine the maximum value of the sum of any of its subarrays modulo  $m$ . For example, Assume  $a = [1, 2, 3]$  and  $m = 2$ . The following table lists all subarrays and their moduli:

	sum	%2
[1]	1	1
[2]	2	0
[3]	3	1
[1,2]	3	1
[2,3]	5	1
[1,2,3]	6	0

The maximum modulus is 1.

### Function Description

Complete the maximumSum function in the editor below. It should return a long integer that represents the maximum value of *subarray sum % m*. maximumSum has the following parameter(s):

- a: an array of long integers, the array to analyze
- m: a long integer, the modulo divisor

### Input Format

The first line contains an integer  $q$ , the number of queries to perform.

The next  $q$  pairs of lines are as follows:

- The first line contains two space-separated integers  $n$  and (long) $m$ , the length of  $a$  and the modulo divisor.
- The second line contains  $n$  space-separated long integers  $a[i]$ .

### Constraints

- $2 \leq n \leq 10^5$
- $1 \leq m \leq 10^{14}$
- $1 \leq a[i] \leq 10^{18}$
- $2 \leq$  the sum of  $n$  over all test cases  $\leq 5 \times 10^5$

### Output Format

For each query, return the maximum value of *subarray sum % m* as a long integer.

### Sample Input

```
1
5 7
3 3 9 9 5
```

## Sample Output

6

## Explanation

The subarrays of array  $a = [3, 3, 9, 9, 5]$  and their respective sums modulo  $m = 7$  are ranked in order of length and sum in the following list:

1.  $[9] \Rightarrow 9 \% 7 = 2$  and  $[9] \rightarrow 9 \% 7 = 2$   
 $[3] \Rightarrow 3 \% 7 = 3$  and  $[3] \rightarrow 3 \% 7 = 3$   
 $[5] \Rightarrow 5 \% 7 = 5$
2.  $[9, 5] \Rightarrow 14 \% 7 = 0$   
 $[9, 9] \Rightarrow 18 \% 7 = 4$   
 $[3, 9] \Rightarrow 12 \% 7 = 5$   
 $[3, 3] \Rightarrow 6 \% 7 = 6$
3.  $[3, 9, 9] \Rightarrow 21 \% 7 = 0$   
 $[3, 3, 9] \Rightarrow 15 \% 7 = 1$   
 $[9, 9, 5] \Rightarrow 23 \% 7 = 2$
4.  $[3, 3, 9, 9] \Rightarrow 24 \% 7 = 3$   
 $[3, 9, 9, 5] \Rightarrow 26 \% 7 = 5$
5.  $[3, 3, 9, 9, 5] \Rightarrow 29 \% 7 = 1$

The maximum value for **subarray sum % 7** for any subarray is **6**.

Change Theme
JavaScript (Node.js)

```

48         } else {
49             this.right = new TNode(v)
50             return prev
51         }
52     } else if(v==this.val){
53         if (this.right) { prev=this.right.val }
54         return prev;
55     } else {
56         prev = this.val
57         if (this.left) {
58             return this.left.insert(v, prev)
59         } else {
60             this.left = new TNode(v)
61             return prev
62         }
63     }
64 }
65 }
66
67 let tree = new TNode(pa[0])
68
69 for (let i=1; i<pa.length; i++){
70     let nearV = tree.insert(pa[i], pa[i])
71     // console.log(pa[i], nearV)

```

Line: 77 Col: 15

[Upload Code as File](#)
☐ Test against custom input

Run Code

Submit Code



# Congratulations!

You have passed the sample test cases. Click the submit button to run your code against all the test cases.

✔ Sample Test case 0

✔ Sample Test case 1

✔ Sample Test case 2

Input (stdin)

1	1
2	5 7
3	3 3 9 9 5

Your Output (stdout)

1	6
---	---

Expected Output

1	6
---	---

Download

Download

