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Maximum Subarray Sum 🛊

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We define the following:

- A subarray of array a of length n is a contiguous segment from a[i] through a[j] where $0 \le i \le j < n$.
- 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 $m{q}$, the number of queries to perform.

The next \boldsymbol{q} pairs of lines are as follows:

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

Constraints

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

Output Format

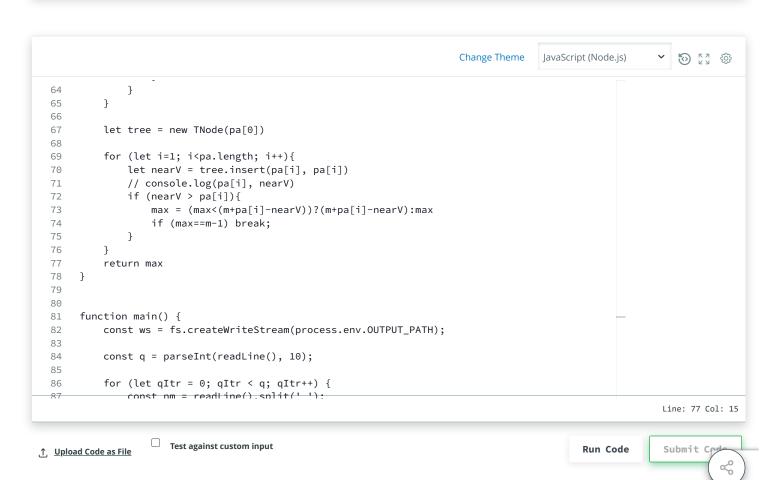
For each query, return the maximum value of $\it subarray sum \% m$ as a long integer.

Sample Input

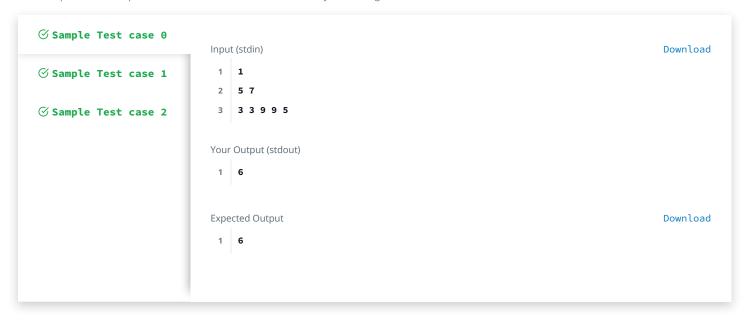
1 5 7 3 3 9 9 5



```
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 \it subarray \it sum~\%~7 for any subarray is \it 6.
```



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



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