Problem A. Aloha!

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

The 5th GXCPC is coming soon!

Please print 'I AK GXCPC!'(without quotes) proudly.

Input

No input.

Output

One line containing 'I AK GXCPC!'(without quotes).

Example

standard input	standard output
(no input)	I AK GXCPC!

Problem B. Hard math problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

You have two positive integers a and b.

Try to Print a^b.

Input

One line with two integers a and b ($1 \leq a, b \leq 8$).

Output

One line with a integer representing a^b.

Example

standard input	standard output
2 3	8

Problem C. Sum of sets

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

You have n sets of positive integers numbered from 1 to n (Obviously, a set can't contain a integer many times) . These sets are initially empty.

An empty set makes no sense, so you want to perform m operations to add elements to these sets.

In an operation L R x , you will add element x to every set i which $L \leq i \leq R$. If x already exists in a set, it will **NOT** be added to this set.

After m operations, you want to know the sum of every set. Note that the sum of an empty set is 0 .

Input

The first line contains two positive integers n, m $(1 \leq n, m \leq 10^5)$.

In the next m lines, every line contains three positive integers L, R, x $(1 \leq L \leq R \leq n, 1 \leq x \leq 2 \times 10^4)$ — an operation.

Output

The output contains one line. For each i $(1 \leq i \leq n)$, output the sum of the set i .

Example

standard input	standard output
5 3 1 4 1 1 3 2 3 5 2	3 3 3 3 2

Problem D. Yesterday Once More

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Eva loves wandering about but she doesn't like any limitations.

So nice Colin built an **Undirected Complete Graph** containing N nodes, numbering from 1 to N. And then he presented this graph to Eva.

Then they begin to play on this graph. At the beginning, they **both** stand at the Node 1. Then, Eva is going to walk randomly on the graph while Colin stays at the Node 1 looking at her. Specifically, every second Eva will **randomly choose one edge related to the very point she stands now** to move.

The thing is that at some seconds Colin will expect Eva to be by his side, but he doesn't want to tell Eva. So he comes to ask you what's the probability of the event that Eva is also standing at Node 1 (where Colin stays) at these specific seconds.

P.S. To avoid floating point errors, Colin wants the probability module 998244353.

Input

One line with two integers n and q ($2 \le n \le 10^{18}, 1 \le q \le 10^5$) , represents the number of the nodes in the graph, and the number of queries.

Then q lines follow, each with an integer t ($0 \le t \le 10^{18}$) , represents querying the probability of the event that Eva is standing at Node 1 (where Colin stays) at the second t.

Output

For each query t, output one line containing one integer, represents the probability of the event that Eva is standing at Node 1 (where Colin stays) at the second t.

It can be proved that the answer can be represented as an irreducible fraction $\frac{x}{y}$, and we guarantee that it can be represented while module 998244353 .

Example

standard input	standard output
3 2 0 2	1 499122177