

F	Flying Pig Borrowing Log	
	Time Limit (seconds)	1.5
	Memory Limit (MB)	256

A certain high school requires students to read several selected books. Among those books, there is one outstanding book titled "**Flying Pig**".

There are N students, numbered from 1 to N , who are planning to read this book. There are M days in a semester. The library opens every day for the entire semester, and the book is available from the beginning of the semester. The i -th student will visit the library the first time on day b_i and will visit again on day $b_i + a_i, b_i + 2 \cdot a_i, \dots, b_i + x \cdot a_i$ where $1 \leq x$ and $b_i + x \cdot a_i \leq M$.

On day d , if a student visits the library and the book is **available** and the student **has not read it before**, the student borrows it and returns it exactly c_i days later; that is, if the i -th student borrows the book on day d , it becomes available again on day $d + c_i$. If multiple students visit on the same day, the book is given to the student with the smallest number. A student may also borrow the book even if $d + c_i > M$, in which case the return is considered to happen after the M -th day.

For each student, print the day the student gets to borrow the book, or -1 if the student will not be able to borrow the book until the end of the semester.

INPUT

The first line contains two integers, N and M — the number of students and the number of days in the semester. ($1 \leq N, M \leq 100,000$)

The next N lines contain three integers, a_i, b_i , and c_i — the numbers for the i -th student visitation pattern stated in the problem statement, and the duration of the i -th student borrowing. ($1 \leq a_i, b_i, c_i \leq M$).

OUTPUT

Output one line with N integers – the day student 1,2,3, ..., N gets to borrow the book, or -1 if the student will not be able to borrow the book until the end of the semester.

EXAMPLE

INPUT	OUTPUT
3 10 4 2 3 3 4 1 5 2 1	2 7 -1

NOTES

Sample Explanation

Student 1 visited the library on days 2, 6, and 10.

Student 2 visited the library on days 4, 7, and 10.

Student 3 visited the library on days 2 and 7.

On day 2, students 1 and 3 visited the library, but student 1 had a lower number, so the book was borrowed by student 1.

On day 4, student 2 visited, but the book was not available.

On day 5, student 1 returned the book. The book became available again, but it was not borrowed since no one visited the library that day.

On day 7, students 2 and 3 visited the library, but student 2 had a lower number, so the book was borrowed by student 2.

On day 8, student 2 returned the book. The book became available again, but it was not borrowed since no one visited the library that day.

On day 10, students 1 and 2 visited the library, but both of them had already read the book, so it was not borrowed.