

The Librarian

Problem Description

Each book in the library has a book code, which is a positive integer and can be used to quickly retrieve books. Each reader who borrows books has a requirement code, which is also a positive integer. If a book's book code ends in the reader's requirement code, then this book is what the reader needs. D has just become the librarian of the library. She knows the book codes of all the books in the library. She asks you to help her write a program that for every reader, find the book with the smallest code among the books he needs, and if there is no book he needs, print -1.

Input

The first line contains two positive integers, n and q , separated by a space, representing the number of books in the library and the number of readers.

The next n lines, each containing a positive integer, represent the book code of a book in the library.

The next q lines each contain two positive integers, separated by a space. The first positive integer represents the length of the reader's requirement code, and the second positive integer represents the reader's requirement code.

Output

There are q lines, each containing an integer. If the books required by the i^{th} reader exist, find the one with the smallest book code among all the books the i^{th} reader needs, and print that code on line i . Otherwise, print -1.

Sample Input

```
5 5
2123
1123
23
24
24
2 23
3 123
3 124
2 12
2 12
```

Sample Output

```
23
1123
-1
-1
-1
```

Hint

For 20% of the data, $1 \leq n \leq 2$.

For another 20% of the data, $q=1$.

For another 20% of the data, the length of the requirement code is 1 for all readers.

For another 20% of the data, all the book codes are given in order from smallest to largest.

For 100% of the data, $1 \leq n \leq 1000$, $1 \leq q \leq 1000$, all book codes and requirement codes do not exceed 10,000,000.