Video Service

A red letter on a black background

AI-generated content may be incorrect.A red letter on a black background

AI-generated content may be incorrect.You are the single engineer who has newly been placed in charge of all of the servers at Metflicks after the previous employee quit for 3% more total compensation at a rival streaming service. After coming to terms with the fact that you are doomed to manage the terabytes of data requested of your precious servers each day, you pull yourself up by your bootstraps and get to work. Once you finally figure out how everything works, you stumble upon a note scrawled in what looks like ketchup tucked away in your desk. It is a hastily written list titled DO NOT SERVE UNDER ANY CIRCUMSTANCES, with many IP addresses listed beneath. You find another list written in what smells like mustard titled BAD DATA, with very sketchy descriptions of packet payloads that when strung together, cause all of your servers to catch fire.

Write a program that, given a list of IP addresses and data sequences, rejects all packets that contain IP addresses that are not to be served and halts acknowledgements when multiple successive packets are combined to form bad data. Packets with lower sequence numbers contain higher significance bits.

In addition, known valid users can make bad data requests, putting them on the naughty list. Once a user has been marked as DO NOT SERVE, they cannot get off this list and are permanently barred from using Metflicks.

Input

The first line of input is a number of DO NOT SERVE IP addresses. The next lines will contain 32-bit representations of IP addresses

The next line of input is a number of possible bitstrings of bad data. The next lines will contain bitstrings between lengths and , but will always be divisible by 32.

The following line of input is for a number , where you will receive total packets. The next lines will be packets in the form:

|  |  |  |  |
| --- | --- | --- | --- |
| 32-bit source IP address | 32-bit current sequence number | 32-bit total sequence number | 32-bit data bitstring |

Each packet series is guaranteed to have packets sent by that IP address, but there can be multiple different chains interwoven, although they are all guaranteed to have different values of . Additionally, multiple users can be making requests at the same time.

The remaining input is a number representing the total number of unique user IP address. The following lines of input are IP addresses that may or may not have sent a request to your servers.

Output

For each IP address , print 1 to mark that this user only had good requests or print 0 to mark that this user either was originally on the DO NOT SERVE list or earned their way on by sending bad data. Print nothing if this user did not make a request.

Languages

Surely this is doable in java, python and C++, or pretty much any language that has support of integers over size ?

Sample Input

2

11111111111111111111111111111111

10101010101010101010101010101010

3

00000000000000000000000000000001

10001110000110001010010000000101

10000010100001000100001000001000

4