Competitive Programming SS23

Submit until end of contest

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Problem: ip-lookup (1.0 second timelimit)

You are the sole network administrator of a multi-national company. Your predecessor has devised an ingenious network protocol based on bit strings (IPs) of variable length, and you have spent your first weeks compiling a list of IPs and subnets that are still connected to the network. Now your boss has given you the IPs of all current employees and wants you to check these against your list.

Input The input starts with a number n ($1 \leq n \leq 5 \cdot 10^6$) the number of active IPs and subnets. Each of the n following lines contains an IP as a bit string of length l_i ($1 \leq l_i \leq 5 \cdot 10^6$), optionally followed by a $\star$, marking a subnet. In a subnet, every IP with that prefix is active, i.e. the subnet $1*$ implies that 1, 1001, etc. are active.

The input continues with m ($1 \leq m \leq 5 \cdot 10^6$), the number of employee IPs, then these IPs follow. These will always be single IPs, not subnets, that have the same length restrictions as above.

It is guaranteed that the sum over the lengths of all IPs is also less than $5 \cdot 10^6$.

Output For each employee IP print a line containing "`Yes`" if the IP is still active, otherwise print "`No`" (in which case the employee has probably been fired a long time ago).

Sample input

```
3
100110*
011*
111
4
111
100110
01111001
10000
```

Sample output

```
Yes
Yes
Yes
No
```