#include <fstream>

#include <iostream>

#include <cstring>

#include <cassert>

#define DIM 1010

using namespace std;

char a[DIM][DIM], b[DIM][DIM];

char s[2\*DIM];

int n, i, j, k, L;

int main () {

ifstream fin ("rebus.in");

ofstream fout("rebus.out");

fin>>n;

assert(1 <= n && n <= 500);

for (i=1;i<=n;i++) {

fin>>a[i] + 1;

assert(strlen(a[i]+1) == n);

for (j=1;j<=n;j++) {

if (a[i][j] >= 'A' && a[i][j] <= 'Z')

a[i][j] += ('a'-'A');

assert(a[i][j] >= 'a' && a[i][j] <= 'z');

}

}

for (j=1;j<=n;j++)

for (i=1;i<=n;i++)

b[j][i] = a[i][j];

fin>>k;

assert(1 <= k && k <= 1000);

for (i=1;i<=k;i++) {

fin>>s;

L = strlen(s);

assert(L >= 1 && L <= n);

for (j=0;s[j]!=0;j++) {

if (s[j] >= 'A' && s[j] <= 'Z')

s[j] = s[j] + ('a'-'A');

///cout<<i<<" "<<j<<"\n";

assert(s[j] >= 'a' && s[j] <= 'z' || s[j] >= 'A' && s[j] <= 'Z');

}

int gasit = 0;

for (j=1;j<=n;j++)

if (strstr(a[j]+1, s)) {

gasit = 1;

break;

}

if (! gasit)

for (j=1;j<=n;j++)

if (strstr(b[j]+1, s)) {

gasit = 1;

break;

}

fout<<gasit;

}

return 0;

}