Problem 1

Let Your Fingers do the Talking

5 Points

Program Name: tenprint.cpp **Input File: tenprint.dat**

Forensic specialists will tell you that there is a limited set of general shapes that fingerprints follow. Moreover, the patterns are typically not the same on any given person's hand. Even if there are only 3 general shapes (although there are more in reality), you can see that the chances of 2 people having the exact same set of "tenprints" (10 fingers with one print each) is 1 in $3^{10} = 59049$. For the purposes of this problem, we will assume that there are just 3 print shapes.

Shape	Input File Character	Descriptions
Circular	O	Fingerprint pattern forms 1 or more concentric circles.
Left Slant	L	Fingerprint pattern forms "U" shape that opens away from the end of the finger and slants to the left.
Right Slant	R	Fingerprint pattern forms "U" shape that opens away from the end of the finger and slants to the right.
Unknown	?	The fingerprint shape cannot be determined.

Another interesting tidbit is that the specialist can usually determine which finger left the print. Therefore, by comparing known fingerprint shapes at a forensic site against a databank, an investigator can build a list of candidates while excluding most people in the databank. For example, suppose we took a set of prints from a site such that the tenprints are "`LOO?RLLR??`" where the question marks are prints that are unavailable. Then comparing the prints against those in the following databank, we can determine a list of suspects.

Name	Tenprints	Result of comparison
Buck_Wheat	`LOORRLLROO`	Candidate because he matches in all 7 positions collected by the investigator.
Darla_Rascal	`ORORROLLROL`	Not a candidate because he does not match in 1 or more of the 7 positions.
Spanky_Boyd	`LOORLLLRLR`	Not a candidate because he does not match in 1 or more of the 7 positions.
Al_Falfa	`RRROLORLLR`	Not a candidate because he does not match in 1 or more of the 7 positions.
Froggy_Mann	`ROORRLLROO`	Not a candidate because he does not match in 1 or more of the 7 positions.
Weaser_Kidd	`RLLRLOLROO`	Not a candidate because he does not match in 1 or more of the 7 positions.
Butch_Bully	`LOOLRLLRLR`	Candidate because he matches in all 7 positions collected by the investigator.
T_Cherlady	`OORLLROLRO`	Not a candidate because he does not match in 1 or more of the 7 positions.
Stimey_Hatman	`LLORRLROLR`	Not a candidate because he does not match in 1 or more of the 7 positions.
Cotton_Hatman	`OORLLRORLO`	Not a candidate because he does not match in 1 or more of the 7 positions.

You can see from the above table, that Buck_Wheat and Butch_Bully are candidates while the others are not. You can eliminate the others because if even 1 position does not match, then they cannot be a suspect. Even Froggy Mann is eliminated by the single incorrect leading print.

Input

Input to your program will consist of a databank followed by a series of forensic tests. The first line of input to your program will contain a single integer ($1 \le C \le 100$) which indicates the number of entries in the databank. The next C lines will each contain exactly 1 databank entry. A databank entry consists of the person's tenprints in columns 1-10 (valid values are "O", "L", and "R" from the table above). There will be a single space followed by the person's name starting in column 12. Names are at most 30 characters long and consist of alphabetic and underscore characters only.

Starting on line C+2, you will find a series of forensic tests. Each forensic test will be found on a line by itself in columns 1-10. Valid characters are "O", "L", "R", and "?" from the table above.

Output

For each forensic test, your program should print a list of candidates to the screen. Candidates should be printed 1 per line. If no candidates are found in the databank, your program should print the message "No Suspects" on a line by itself starting in column 1. After each candidate list (or "No Suspects" message) from a forensic test, your program **must** print a blank line.

Example: Input File

```
10
LOORRLLROO Buck_Wheat
ORORROLLROL Darla_Rascal
LOORLLLRLR Spanky_Boyd
RRROLORLLR Al_Falfa
ROORRLLROO Froggy_Mann
RLLRLOLROO Weaser_Kidd
LOOLRLLRLR Butch_Bully
OORLLROLRO T_Cherlady
LLORRLROLR Stimey_Hatman
OORLLRORLO Cotton_Hatman
LOO?RLLR??
ROLRRLRRLR
???R???R??
```

Output to screen

```
Buck_Wheat
Butch_Bully

No Suspects

Buck_Wheat
Darla_Rascal
Spanky_Boyd
Froggy_Mann
Weaser_Kidd
```