## **HPCODEWARSXVII**

During the competition in the HP CodeWars Arena today, you are travelling [virtually] by many means (jogging, walking, etc.) For this event, you must find those modes of transport. They are hidden in the grid of letters below, but some of the words are missing a letter.

problem 16
Unfinished
Travel

Your program must replace all of the digits in the input with appropriate letters so that all of the provided words can be found in the grid in a word-search fashion (horizontally or vertically, in any direction, but NOT diagonally.) Letters may be used in more than one word, but missing letters are used in exactly one word, and no word is missing more than one letter. Careful! Each digit could represent different letters to complete different words, but only one set of replacements will result in all words being found. Each word will be found exactly once in the final grid.

## Input

The first line contains two integers X Y, representing the number of rows and columns in the data. Maximum of 10 rows and 20 columns. The next X lines include the grid of letters, Y characters at a time. It consists of only capital letters (A-Z) and numbers (1-9) marking the location of missing letters. After the grid is a line with a single integer N (less than 20), then N lines with the words to be found in the search grid.

SLH8UROW3LIDE

920GAMEANDERL UJPCRA5LUGCO4

R7TNUASK6PALM

CGXY1LIMBERLA

14

JOG RUN

HOP

WALK

DITOIT

RUSH RACE

CLIMB

AMBLE

SLIDE

SAUNTER

MEANDER

CRAWL

SKIP

ROLL

## Output

Print in numerical order one line for each digit, its replacement letter, and the word it is in, each separated by one space.

- 1 C CLIMB
- 2 J JOG
- 3 S SLIDE
- 4 B AMBLE
- 5 W CRAWL
- 6 I SKIP
- 7 E SAUNTER
- 8 S RUSH
- 9 N RUN

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