12. Word Search

Program Name: WordSearch.java   Input File: wordsearch.dat

Given an *n* by *n* grid of letters, and a list of words, find the location in the grid where the word can be found. A word matches a straight, contiguous line of letters in the grid. The match could either be done horizontally (left or right) or vertically (up or down) or diagonally (lower right to upper left or upper right to lower left or lower left to upper right or upper left to lower right).

Input
The first line of input will contain a single integer n that indicates the dimension of the grid of letters. Each of the next n lines will contain n upper case characters separated by one or more spaces. The next line will contain a single integer m that indicates the number of words to find. Each of the next m lines will contain a single word in upper case. A word may exist either 0 or 1 times in the grid.

Output
You will print each word on a line and on the same line print the row and the column of the first letter of the word in the grid. The numbering for both the row and the column starts with 1. If the word does not exist in the grid, use 0 for both the row and column number.

Example Input File
```
14
S I N S N O W S T O R M W I
K L N T S N O W M A N E F E
A R E C A L P E R I F R I E
T C G I C A N D L E E R M K
E F H B G T A O C E E Y I A
S R R I L H T U Z P A C T L
T A N O L I B E R I G H T F
B C D H S L Z E T A N R E W
O S D E E T T Z L D R I N O
O E D V L N I S A L S S S N
T B O L I S C Y Y R S T E S
S H H W O L E L O W D M C A
S N A D E C E M B E R A D L
E L T I S E A S O N G S H T
19
FROST
COLD
BOOTS
CANDLE
COAT
SLEIGHBELLS
BLIZZARD
SANTA
FREEZE
HILL
SONGS
DECEMBER
FIREPLACE
MITTENS
SEASON
SKATES
SNOWMAN
TREE
SNOWSTORM
```

12. Word Search (cont.)

Example Output to Screen

```
FROST 5 2
COLD 13 6
BOOTS 8 1
CANDLE 4 5
COAT 5 9
SLEIGHBELLS 1 1
BLIZZARD 5 4
SANTA 0 0
FREEZE 2 13
HILL 5 3
SONGS 14 8
DECEMBER 13 4
FIREPLACE 3 11
MITTENS 4 13
SEASON 14 5
SKATES 1 1
SNOWMAN 2 5
TREE 0 0
SNOWSTORM 1 4
```