WordSearch (500 points)

Introduction

One Sunday morning, while sitting in bed before breakfast and doing a word search puzzle, you decide that this is an inefficient use of time and decide to write a program to solve it for you, but with a twist. You program needs to read in a word search puzzle and a list of possible words, and then output only the words that were actually found in the puzzle.

Words need to appear in consecutive order and be in the puzzle either vertically or horizontally, not diagonally. The twist, is that words can appear as a **vertical and horizontal path in the puzzle, not just in one direction**. However, to find each word, each letter may only be used once.

Input Specifications

Your program will take

- A positive integer **N** where **1 < N < 1000**
- This is followed by a positive integer **M** where **1 < M < 100**
- This is followed by **N lines** of N space-separated **lowercase ascii letters**
- Lastly, this is followed by **M lines** of words, made up of *up to* 100 lowercase ascii letters.

All words will be unique. Words need to be printed out only once regardless of how often they appear in the word search. Words should be printed in the order they appear in the input.

Output Specifications

List of words found in the puzzles, each word on a new line. See below for an example.

Sample Input/Output

Input

```
4
4
p a a n
e t a e
i h k r
i f l v
path
pea
eat
rain
```

Output

```
path
eat
```

Explanation

Only the words *path* and *eat* can be found in the above WordFind