# Algorithms Fundamentals with C#: Exam

Please submit your solutions (source code) to all the below-described problems in [Judge](https://judge.softuni.org/Contests/4005/Algorithms-Fundamentals-with-CSharp-Exam-08-July-2023).

## Word Searcher

Given a grid of letters and a list of words, write a program to find all possible words that can be formed by connecting adjacent letters in the grid, where "adjacent" means **horizontally**, **vertically,** or **diagonally** **neighboring letters**.

Example:

|  |  |  |
| --- | --- | --- |
| **D** | **C** | **A** |
| **O** | **G** | **T** |
| **G** | **J** | **K** |
| **M** | **N** | **O** |

List of words: DOG, CAT, JOG, JAM, GEM

**NOTE**: The letter 'O' (1, 0) is used by both DOG and JOG words.

### Input

* + On the first line, you will receive an integer - **r** - number of rows in the grid.
  + On the second line, you will receive an integer - **c** - number of cols in the grid.
  + On the next **r** lines, you will receive all letters in the grid for the given row.
  + On the last line, you will receive a string representing all words in the following format: **"{word1} [word2} … {wordN]"**.

### Output

* + Print all unique words found in the grid of letters.
  + Each word should be printed on a single line.
  + The order of the words doesn’t matter.

### Constraints

* + r will be in the range **[1… 10]**.
  + c will be in the range **[1… 10]**.
  + The size of the word list will be in the range **[1… 20]**.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 4  3  DCA  OGT  GJK  MNO  DOG CAT JOG JAM GEM | DOG  CAT  JOG |
| 4  4  abcd  oreo  osol  kntl  doll book best car cron animal cat | doll  book  best  cron |