



# Chefland and Average Distance

Problem Code: **AVGMAT**



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**as well.**

Chefland is a grid with  $N$  rows and  $M$  columns. Each cell of this grid is either empty or contains a house. The distance between a pair of houses is the Manhattan distance between the cells containing them.

For each  $d$  between 1 and  $N + M - 2$  inclusive, Chef wants to calculate the number of unordered pairs of distinct houses with distance equal to  $d$ . Please help him!

## Input

- The first line of the input contains a single integer  $T$  denoting the number of test cases. The description of  $T$  test cases follows.
- The first line of each test case contains two space-separated integers  $N$  and  $M$ .
- $N$  lines follow. For each  $i$  ( $1 \leq i \leq N$ ), the  $i$ -th of these lines contains a binary string with length  $M$ ; for each  $j$  ( $1 \leq j \leq M$ ), the  $j$ -th character of this string is '1' if the cell in the  $i$ -th row and  $j$ -th column contains a house or '0' if it is empty.

## Output

For each test case, print a single line containing  $N + M - 2$  space-separated integers. For each valid  $i$ , the  $i$ -th integer should denote the number of pairs with distance  $i$ .

## Constraints

- $1 \leq T \leq 3$
- $2 \leq N, M \leq 300$

## Subtasks

**Subtask #1 (50 points):**  $N, M \leq 50$

**Subtask #2 (50 points):** original constraints

## Example Input

```
1
3 4
0011
0000
0100
```

## Example Output

```
1 0 1 1 0
```

Author: 6★ [kingofnumbers \(/users/kingofnumbers\)](/users/kingofnumbers)

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Time Limit: 3 secs

Source Limit: 50000 Bytes

Languages: C, CPP14, JAVA, PYTH, PYTH 3.6, PYPY, CS2, PAS fpc, PAS gpc, RUBY, PHP, GO, NODEJS, HASK, rust, SCALA, swift, D, PERL, FORT, WSPC, ADA, CAML, ICK, BF, ASM, CLPS, PRLG, ICON, SCM qobi, PIKE, ST, NICE, LUA, BASH, NEM, LISP sbcl, LISP clisp, SCM guile, JS, ERL, TCL, kotlin, PERL6, TEXT, SCM chicken, PYP3, CLOJ, COB, FS

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