

Reverse Lookup

In many applications, data is organized into some sort of two-dimensional table, such as a spreadsheet, crossword puzzle, magic square, etc. When data is arranged into rows and columns, it is easy to look up the value located at a particular row and column. However, doing the reverse – searching the entire table for a data value – is not so simple.

Here is an illustration. Consider this table of numbers.

	Column 1	Column 2	Column 3	Column 4	Column 5
Row 1	24	41	12	69	76
Row 2	22	47	81	92	86
Row 3	58	95	30	61	17
Row 4	16	84	7	56	89
Row 5	65	42	88	52	18
Row 6	75	6	39	72	62
Row 7	66	23	59	11	53
Row 8	38	46	21	28	31
Row 9	78	34	27	85	77
Row 10	8	54	33	2	93
Row 11	9	19	3	45	32
Row 12	51	26	50	67	91
Row 13	71	60	13	14	94
Row 14	83	40	25	80	10
Row 15	90	49	1	87	68
Row 16	79	4	35	74	82
Row 17	29	15	73	20	44
Row 18	70	37	64	43	57
Row 19	48	63	55	36	5

What number is located at row 11, column 3? Such an easy question! But, what if I asked you to tell me the location (row/column) of the number 25? You would have to methodically search the entire table until you found it. And if I made several of these requests, you would quickly get tired of such a menial task. So that we don't lose our minds, let's create a reverse lookup table.

The reverse lookup table can be thought of as being one dimensional. For every value that exists inside the body of the original table, we are to keep track of the row and the column. The (row, column) can be thought of as a single unit, or you can think of them as 2 separate values, in which case you would have (barely) a two-dimensional array. For the example table above, the first few entries of the reverse lookup table would look like this:

Number	Row	Column
1	15	3
2	10	4
3	11	3

4	16	2
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Let's assume that each value inside the table is unique. In other words, each value only appears once in the table. Later, you could relax this restriction.

Write a program that reads a table of numbers like the one above, and then prints out the equivalent reverse lookup table.

You may assume that the input will begin by telling you the number of rows and the number of columns in the table. In other words, the first few lines of input will look like this:

```
19 rows
5 columns
24 41 12 69 76
22 47 81 92 86
58 95 30 61 17
...
```

For your convenience, you can download an example input file called `reverse-lookup-input.txt`.