

The Grid Search ■



Problem Submissions Leaderboard Discussions Editorial

Given a 2D array of digits, try to find the occurrence of a given 2D pattern of digits. For example, consider the following 2D matrix:

Assume we need to look for the following 2D pattern:

876543 111111 111111

If we scan through the original array, we observe that the 2D pattern begins at the second row and the third column of the larger grid (the 8 in the second row and third column of the larger grid is the top-left corner of the pattern we are searching for).

So, a 2D pattern of **P** digits is said to be present in a larger grid **G**, if the latter contains a contiguous, rectangular 2D grid of digits matching with the pattern **P**, similar to the example shown above.

Input Format

The first line contains an integer, T, which is the number of test cases. T test cases follow, each having a structure as described below:

The first line contains two space-separated integers, \mathbf{R} and \mathbf{C} , indicating the number of rows and columns in the grid \mathbf{G} , respectively.

This is followed by $m{R}$ lines, each with a string of $m{C}$ digits, which represent the grid $m{G}$.

The following line contains two space-separated integers, r and c, indicating the number of rows and columns in the pattern grid P.

This is followed by $m{r}$ lines, each with a string of $m{c}$ digits, which represent the pattern $m{P}$.

Constraints

$$\begin{split} &1 \leq T \leq 5 \\ &1 \leq R, r, C, c \leq 1000 \\ &1 \leq r \leq R \\ &1 \leq c \leq C \end{split}$$

Output Format

Display 'YES' or 'NO', depending on whether (or not) you find that the larger grid G contains the rectangular pattern P. The evaluation will be case sensitive.

Sample Input

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```
404007454272504
549043809916080
962410809534811
445893523733475
768705303214174
650629270887160
2 2
99
99
```

Sample Output

YES NO

Explanation

The first test in the input file is:

As one may see, the given 2D grid is indeed present in the larger grid, as marked in bold below.

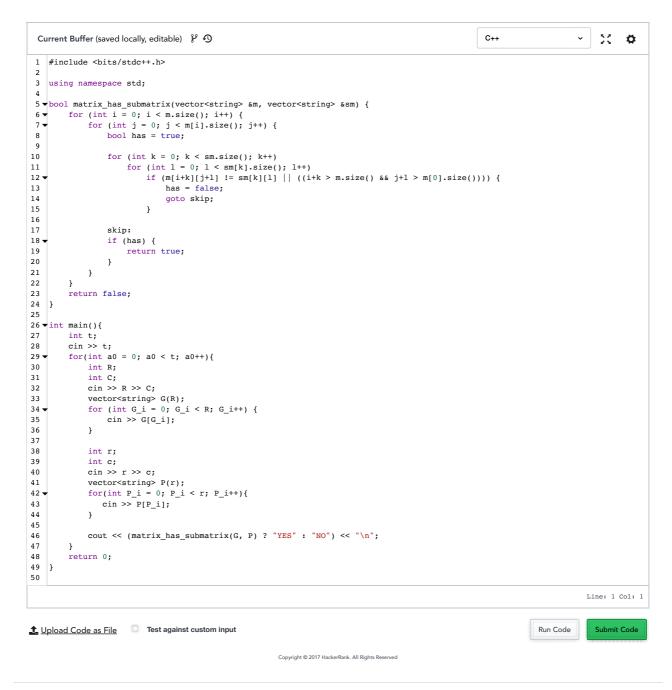
The second test in the input file is:

The search pattern is:

This cannot be found in the larger grid.

f in Submissions: 28042 Max Score: 30 Difficulty: Medium Rate This Challenge: ☆☆☆☆☆

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