The Grid Search

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

```
1234567890
0987654321
1111111111
1111111111
2222222222
```

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

```
876543
111111
111111
```

The 2D pattern begins at the second row and the third column of the grid. The pattern is said to be *present* in the grid.

Input Format

The first line contains an integer t, the number of test cases.

Each of the t test cases is represented as follows:
The first line contains two space-separated integers R and C, indicating the number of rows and columns in the grid G.
This is followed by R lines, each with a string of C digits representing the grid 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 r lines, each with a string of c digits representing the pattern P.

Constraints

$1 \leq T \leq 5$
$1 \leq R, r, C, c \leq 1000$
$1 \leq r \leq R$
$1 \leq c \leq C$

Output Format

Display 'YES' or 'NO', depending on whether p is present in G.

Sample Input

```
2
10 10
7283455864
6731158619
8988242643
3830589324
2229505813
5633845374
6473530293
7053106601
0834282956
```

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Difficulty	Medium
Max Score	30
Submitted By	35150

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```
4607924137
3 4
9505
3845
3530
15 15
400453592126560
114213133098692
474386082879648
522356951189169
887109450487496
252802633388782
502771484966748
075975207693780
511799789562806
404007454272504
549043809916080
962410809534811
445893523733475
768705303214174
650629270887160
2 2
99
99
```

Sample Output

```
YES
NO
```

Explanation

The first test in the input file is:

```
10 10
7283455864
6731158619
8988242643
3830589324
2229505813
5633845374
6473530293
7053106601
0834282956
4607924137
3 4
9505
3845
3530
```

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

```
7283455864
6731158619
8988242643
3830589324
2229505813
5633845374
6473530293
7053106601
0834282956
4607924137
```

The second test in the input file is:

```
15 15
400453592126560
114213133098692
```

```
474386082879648
522356951189169
887109450487496
252802633388782
502771484966748
075975207693780
511799789562806
404007454272504
549043809916080
962410809534811
445893523733475
768705303214174
650629270887160
2 2
99
99
```

The search pattern is:

```
99
99
```

This cannot be found in the larger grid.

Current Buffer (saved locally, editable) Java 7

```java
import java.io.*;
import java.util.*;
import java.text.*;
import java.math.*;
import java.util.regex.*;

public class Solution {

    static String gridSearch(String[] G, String[] P) {
        // Complete this function
    }

    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        int t = in.nextInt();
        for(int a0 = 0; a0 < t; a0++){
            int R = in.nextInt();
            int C = in.nextInt();
            String[] G = new String[R];
            for(int G_i = 0; G_i < R; G_i++){
                G[G_i] = in.next();
            }
            int r = in.nextInt();
            int c = in.nextInt();
            String[] P = new String[r];
            for(int P_i = 0; P_i < r; P_i++){
                P[P_i] = in.next();
            }
            String result = gridSearch(G, P);
            System.out.println(result);
        }
        in.close();
    }
}

```

Line: 1 Col: 1

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