6. Largest Square

Program Name: LSquare.java Input File: lsquare.dat

Given a square grid of uppercase letters, you are to find the largest square formed around a given location called the center. The location of each character in the grid is given by an ordered pair (r,c) that indicates the row r and the column c of a character relative to the origin. The origin is the top left position of the grid and is considered to be position (0,0). A Largest Square is the largest contiguous s x s area that contains only the same letter as its center.

Input

The first line will contain a single integer n that indicates the number of data sets to follow.

The first line of each data set will contain a single integer p that indicates the number of rows and columns in the square matrix of uppercase letters to follow. The next p lines will contain the p x p square matrix. The following line will contain a single integer m that indicates the number of center locations (r, c) to follow. Each of the next m lines will contain two integers r and c that represent the center for which you are to find the largest square.

Output

For each center of each data set, you are to print r c s where r and c are the row and column of the center of the Largest Square and s is the number of letters in an edge of the Largest Square that contains only the same letter as its center. At least one blank line should be printed between sets of output.

Example Input File

```
2
9
AAABBBAAA
AAABBBAAA
AAABBBAAA
AAABBBAAA
AABBBBBBB
AABBBBBBB
ABBBBBBBB
BBBBBBBBB
BBBBBBBBB
3
3 2
1 1
6 5
5
BBBBB
BBBBB
BBBBB
BBBBB
BBBBB
2
1 2
2 2
```

Example Output To Screen

```
3 2  1
1 1  3
6 5  5

1 2  3
2 2  5
```