Farmer John wants to build a new farm on a large field. The field is represented as a grid of size $R \times C$. Each cell in the field can be used to produce a type of food: either grains ($G$) or livestock ($L$). Below is an example of a field of size $R = 5$, $C = 8$:

```
12345678
1 GGLGGLGL
2 GGLGGLGL
3 GGLLLGGG
4 LLGLLGLG
5 LGGGLGLL
```

Farmer John already have a set of design blueprints of the farm he wants to build. Each blueprint is represented as a grid of size $H \times W$, where $H \leq R$ and $W \leq C$. Each cell in the blueprint denotes the type of food John wants to produce: either grains ($G$) or livestock ($L$). For example, a blueprint of size $H = 2$, $W = 3$:

```
123
1 GLL
2 LGG
```

Using this blueprint, Farmer John can build the actual farm on a certain position in the field. The farm position is represented by the position of its top-left corner. Suppose the farm is built at position $(r, c)$ in the field. The farm must entirely built inside the field (i.e., $r + H - 1 \leq R$ and $c + W - 1 \leq C$). If the type of food in the cell of the field at position $(r + i, c + j)$ matches the type of food in the cell of the blueprint at position $(i + 1, j + 1)$ where $0 \leq i < H$, $0 \leq j < W$, then the food can be produced.

Farmer John wants to pick the farm position in the field such that the farm produces the most number of foods (grains + livestock). If there are more than one possible position, he prefers the top-most position and if there are still more than one possible position, he prefers the left-most position. From the given field and blueprint examples above, the best position is to build the farm at position $(1, 3)$, which is the position of the top-left corner of the farm in the field. As shown underlined:

```
12345678
1 GLGGL
2 GLG
3 GGLGG
4 LGLGL
5 GGGLGLL
```

By building the farm at position $(1, 3)$ in the field, Farmer John can produce 5 foods: 3 grains and 2 livestock. That is, for the first row of the blueprint, 1 grain and 1 livestock can be produced and for the second row of the blueprint, 1 livestock and 2 grains can be produced. Note that building the farm at position $(2, 5)$ and $(3, 2)$ also produce the same number of foods, however Farmer Johns prefer the top-most and then the left-most position. Placing the farm at any other position in the field will produce less than 5 foods.

**Input**

There is only one field in the input. The first line contains two integers $R$ and $C$ where $0 < R, C \leq 500$, followed by $R$ lines each contains $C$ characters describing the field. The next line contains an integer $B$ where $0 < B \leq 5$, which denotes the number of blueprints Farmer John has, followed by $B$ blueprints specifications. Each blueprint starts with a line containing two integers $H$ and $W$ where $0 < H \leq R$ and $0 < W \leq C$, followed by $H$ lines each contains $W$ characters describing the blueprint.

**Output**

For each case, output `Case #X: Y` (without quotes) in a line where $X$ is the case number, starting from 1, followed by a single space, and $Y$ is the four integers output separated by a space between them. The first two integers denote the best position to build the farm. The next two integers are the number of grains and livestock that can be produced.

**Sample Input**

```
5 8
GLGGLGGL
GGLGGLGL
GGLLLGGG
LLGLLGLG
LGGGLGLL
3
1 GLL
2 LGG
3 1
L
G
G
1 4
GGL
```

**Sample Output**

```
Case #1: 1 3 3 2
Case #2: 1 2 2 1
Case #3: 3 1 2 2
```