**Problem C. Building a House**

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](https://code.google.com/codejam/africa_arabia/quickstart.html) to get started.

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| --- | --- |
| Small input 10 points | Solve C-small |
| Large input 23 points | Solve C-large |

Problem

You have just bought land and want to plant the largest rectangular field possible. In surveying your land, you find a number of obstacles and decide to draw a map. You indicate in each square of the map whether it contains grass (**G**), rock (**R**), water (**W**), shrubs (**S**), or trees (**T**). While the grass can be mowed and the shrubs dug from the ground, the water, rocks, and trees **cannot** be removed. Given these obstacles, determine the area of the largest rectangular field.

Input

The first line of input gives the number of cases, **N**.  
**N** test cases follow. For each test case there will be:

* One line containing two space-separated integers indicating the length (**L**) and width (**W**) of your land.
* Followed by, **W** lines, each containing **L** characters where each indicates the conditions for that square of land (one of G, R, W, S, or T).

Output

For each test case, output one line containing "Case #**x**: " followed by the maximum area of the largest rectangle that can be cleared.

Limits

1 ≤ **L** ≤ 50  
1 ≤ **W** ≤ 50

Small dataset

**N** ≤ 10  
Fewer than 5 obstacles in each test case.

Large dataset

**N** ≤ 30  
Fewer than 20 obstacles in each test case.

Sample

|  |  |
| --- | --- |
| Input | Output |
| 4 1 1 G 2 2 GS SG 2 2 GT GG 5 8 GGTGG TGGGG GSSGT GGGGT GWGGG RGTRT RTGWT WTWGR | Case #1: 1 Case #2: 4 Case #3: 2 Case #4: 9 |