The 19th Japanese Olympiad in Informatics (JOI 2019/2020)
Spring Training Camp/Qualifying Trial
March 20–23, 2020 (Komaba, Tokyo)

Contest Day 4 – Legendary Dango Maker

Legendary Dango Maker
(Output Only Task)

You are a professional making delicious rice dumplings, called dangos. Now you are skewering dangos with sticks.

Dangos are located in a rectangular grid of cells with R rows and C columns. Each cell contains one dango. The color of a dango is pink (P), white (W), or green (G). You will choose three consecutive dangos in the vertical direction (from top to bottom), the horizontal direction (from left to right), or the oblique direction (from left-top to right-bottom, or from right-top to left-bottom). Then you will take three dangos from these cells from end to end, and skewer them to a stick in order, to get a **stick of dangos**. For example, if you choose three consecutive dangos in the vertical direction, you can take dangos from top-middle-bottom or bottom-middle-top cells, in this order, and skewer them to a stick. You cannot take dangos from middle-bottom-top or bottom-top-middle cells. Moreover, you cannot skewer a dango to more than one stick.

A stick of dangos is **beautiful** if the colors of the dangos in the stick are pink-white-green or green-white-pink, in this order. You want to make as many beautiful sticks of dangos as possible.

How many beautiful sticks of dangos can you make?

Input

For this task, there are six input data.
The input is given in the following format.

> $R\ C$
> D_1
> $\vdots$
> D_R

Here D_i $(1 \leq i \leq R)$ is a string of length C consisting of P, W, and G. The j-th character $(1 \leq j \leq C)$ of D_i is the color of the dango in the cell located in the i-th row from the top and the j-th column from the left.

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Output

The format of the output data is as follows.

S_1
$\vdots$
S_R

Here S_i ($1 \le i \le R$) is a string of length C consisting of P, W, G, |, -, \, and /. The j-th character ($1 \le j \le C$) of S_i describes how to skewer the dango in the cell located in the i-th row from the top and the j-th column from the left.

- The j-th character of S_i is the character | if you will make a beautiful stick of dangos using the dangos in that cell, the adjacent cell **above**, and the adjacent cell **below**.
- The j-th character of S_i is the character – if you will make a beautiful stick of dangos using the dangos in that cell, the adjacent cell to the **left**, and the adjacent cell to the **right**.
- The j-th character of S_i is the character \ if you will make a beautiful stick of dangos using the dangos in that cell, the touching cell **left above**, and the touching cell **right below**.
- The j-th character of S_i is the character / if you will make a beautiful stick of dangos using the dangos in that cell, the touching cell **right above**, and the touching cell **left below**.
- Otherwise, the j-th character of S_i is P, W, or G according the color of the dango in that cell, i.e. it is the same as the j-th character of D_i.

Submission

Submit output data for each input data.

Constraints

- $3 \le R \le 500$.
- $3 \le C \le 500$.
- D_i ($1 \le i \le R$) is a string of length C consisting of P, W, and G.

Grading

Your score for this task is calculated in the following way.

For each test case, we define four values S (denoting the assigned score), X, Y and Z as follows.

Test Case	S	X	Y	Z
01	15	44000	47000	47220
02	15	39000	41700	41980
03	15	45000	51000	51390
04	15	18000	19000	19120
05	20	43000	48200	48620
06	20	44000	46000	46500

For each test case, let N be the number of beautiful sticks of dangos you can make by your submission. Your score for the test case is calculated as follows.

- If $N < X$, your score is 0.
- If $X \le N < Y$, your score is $\dfrac{N - X}{2(Y - X)} \times S$.
- If $Y \le N < Z$, your score is $\left(\dfrac{1}{2} + \dfrac{N - Y}{2(Z - Y)} \right) \times S$.
- If $Z \le N$, your score is S.

Your score for this task is the sum of your scores for the test cases, rounded to the nearest integer.

However, your score for a test case is 0 if your output data is incorrect, i.e. you cannot make beautiful sticks of dangos according to the characters |, -, \, / in your output data, the characters P, W, or G in your output data conflict with the input data, or the format of your output data is wrong.

Sample Input and Output

Sample Input 1	Sample Output 1
3 4	P-GP
PWGP	WGP|
WGPW	G-PG
GWPG	

In this sample, you make three beautiful sticks of dangos.

Note that you cannot make a beautiful stick of dangos using W G P, in this order.

Sample Input 2	Sample Output 2
3 4	PWWP
PWWP	W\/W
WWWW	PGGP
PGGP	

In this sample, you make two beautiful sticks of dangos.

Visualizer

A visualizer is available for this task, which shows the overview of the input data or the output data in a visual way. You can download the visualizer from the contest system as an attachment file to this task.

To use the visualizer, you should open the attached `visualizer.html` by a web browser and choose or drag-and-drop the file. Note that the visualizer does not completely check the correctness of the format of the given file. It might not be executed correctly if the format of the input file is wrong. Also, it might not be executed correctly if the value of R or C exceeds the constraints.