Problem 1: Run-length Encoding

To encode images, we frequently use a format called the run-length encoding.

For each segment that consists of the same character, we instead record the number of copies of that character. For example:

- aaaa $\rightarrow$ 4xa
- aaaaabbbb $\rightarrow$ 5xa4xb

Write a function that takes a string and computes the run-length encoding of the string.

Problem 2: Weather Prediction

Peter is a meteorologist for a ski resort in Colorado. He would like to be able to predict when they will have snow. Given a weather map of the cloud cover over Colorado, count the number of possible storms. A potential storm is a connected group of clouds. Clouds are connected when they are adjacent to one another vertically, horizontally, or diagonally.

Input
The first line contains two integers w and h, the width and height of Colorado in miles.

Then we have h rows of length w. A period shows no cloud cover, while a # is used to show clouds over that square mile of the state.

Output
Output the number of distinct storms.

Examples

- **Input**
  3 4
  #.#
  ..#
  #..
  ##.

  Output
  4

Problem 3: Skyline

Peter and John are having an argument over which of their cities have the most impressive skyline. To measure this, they've agreed to use the total area of the skyline.

Input
The first line contains an integer n, the number of buildings on the skyline ($0 \leq n \leq 10^5$).
The next n lines each contain the integers h_i, s_i, f_i, the height, start, and final location.

Output
Output the total area of the skyline.