

Rectangular Fields

Farmer William has an old, rectangular orchard of pear trees. Originally, it was completely filled with trees, but over the years many trees had to be felt. Now William wants to use the free space to keep sheep and he wants to change the sheeps pasture every day. He has the brilliant idea to use the pear trees as corners for the pastures fence. In addition, every day's pasture should be rectangular. How many days can William go without repeating any one pasture?

Input: The first line of the input has the number r of rows of the orchard. Every following line consists of a string in $\{0,1\}^r$. The position of pear trees are marked with 1. You can assume that r is bounded from above by 2000.

Output: The number of subgrids (axis-parallel rectangles) such that all corners are marked with a 1.

Note: It is highly recommended to solve this task in C++ or Java.

Sample Input:

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3
111
110
011
```

Sample Output:

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2
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