

A1 ==> Barcode

After Ivancho has sold the revolutionary software product he had been developing last summer, he decided that the time has finally come for him to buy some new clothes from his favourite brands, Versani and Nikidas. The owner of the clothing shop, though, is a greedy man and wants to earn money by selling not only high-quality clothes, but also cheap replicas at higher prices. Ivancho found out about this and made an algorithm for finding out which clothing articles are real and which - fake. He concluded that all fake clothes don't have a real barcode at their tag, but an image which only looks like one. That is why he needs a program which finds out whether a barcode is valid or not.

A valid barcode is every image consisting of vertical black and white stripes with a digit under each one of them.

Ivancho needs your help and asks you to make the program barcode which, given a barcode, determines whether it is valid or not.

The barcode will be given as an N*M table, containing #, representing a black pixel and . (dot), representing a white pixel, as well as digits. A vertical stripe will be considered every column of the table.

Input

At the first line of the file `barcode.in` there will be two integers - N and M - the number of rows and columns in the image placed on the tag of the piece of clothing that Ivancho is looking at. The next N lines contain M symbols each - '.', '#' or one of the digits from 1 to 9.

Output

If the given image is a valid barcode, your program must print into the file `barcode.out` a piece of advice for Ivancho - BUY. Otherwise, it must print the message NO!

Constraints

1 <= N, M <= 1000

Examples

Input (barcode.in) : 5 7 .##..## .##..## .##..## .##..## .##..## 3728155	Input (barcode.in) : 5 7 .##..## .##..## .##..## .##..## .##..## 3728155
Output (barcode.out) : BUY	Output (barcode.out) : NO