Children in school are having fun instead of listening to the teacher. With their iPhone devices the children throw watermelons at each other on the Facebook social site.

The game started when Goran threw one watermelon at each of his friends during the first class that day. During subsequent classes, all children (including Goran) behaved like this:

- If they had been hit by an odd number of watermelons during the previous class, they threw exactly one watermelon at each of their friends;
- If they had been hit by an even number of watermelons (including zero), then they hit each of their friends with two watermelons.

The children are numbered 1 through N, Goran obviously being number 1. The friend relationships between the children are also known.

Write a program that will calculate the total number of watermelons thrown after H classes.

INPUT

The first line contains two integers N and H ($1 \leq N \leq 20$, $1 \leq H \leq 1\,000\,000\,000$), the number of kids and classes.

Each of the following N lines contains a string of N characters '0' or '1'. The character (A, B) in this matrix is '1' if children A and B are friends.

No child will be their own friend. The input matrix will be symmetric.

OUTPUT

Output the number of watermelons after H classes.

SCORING

In test cases worth 50% of points, H will be at most 1000.

EXAMPLES

input	**input**	**input**
4 1 0110 1001 1001 0110 **output** 2	4 2 0110 1001 1001 0110 **output** 14	5 3 01000 10110 01000 01001 00010 **output** 26

In the second example, Goran throws two watermelons during the first class. During the second class, children 1 and 4 each throw two watermelons at 2 and 3 each, while 2 and 3 throw one watermelon at 1 and 4. A total of 12 watermelons is thrown during the second class.