

Extra Set

Filename: *extraset*

Time limit: *10 seconds*

Anya loves playing the game Set. The game consists of 81 cards. Each card has a picture with four attributes: number, color, shape and shading and there are three possible values for each attribute (number - {1, 2, 3}, color - {red, green, purple}, shape - {oval, diamond squiggle}, shading - {none, lines, solid}).

In the game, several cards are laid out and the first person to claim a set, wins that set. A set is three cards such that for each attribute, all three cards in the set either share the attribute or are all different for that attribute. For example, the cards [1, red, oval, lines], [2, red, oval, solid], [3, red, none] form a set because they have three different numbers, the same color, the same shape, and three different shadings.

Anya already regularly beats Arup, but Arup would like to train Anya to be even better in the game. He's thought of a harder version of the game where each card has k attributes, each of which has three possible values taken from the set {0, 1, 2}. Of the possible 3^k distinct cards, consider a set of n of these cards laid out. Arup would like Anya to be able to figure out how many combinations of three cards out of the n cards laid out form sets (a set of three cards where each attribute is either shared or different). Write a program to help Anya ace Arup's challenge!

The Problem

Given the number of attributes for a Set card game, as well as the description of several cards from the game, determine the number of combinations of three cards from the given cards that form sets.

The Input

The first line of input will contain a single positive integer, c ($c \leq 25$), representing the number of Extra Set games. The input for each game will follow. The first line of input for each Extra Set game will contain two space separated positive integers: k ($3 \leq k \leq 19$), representing the number of attributes for the cards in the game, and n ($3 \leq n \leq 1500$), representing the number of cards laid out for the game. The cards for the game follow, one per line. In particular, the i^{th} of these lines will contain k space separated integers $c_{i,1}, c_{i,2}, c_{i,3}, \dots, c_{i,k}$ ($0 \leq c_{i,j} \leq 2$), where $c_{i,j}$ represents the j^{th} attribute value of the i^{th} card. It is guaranteed that each card in a single game will be unique.

The Output

For each Extra Set game, output a single integer on a line by itself: the number of different combinations of three cards that form a set.

Sample Input

```
1
4 5
0 0 1 0
0 1 1 1
0 2 1 2
0 1 1 2
0 2 1 1
```

Sample Output

```
2
```