**Card Memorization**

time limit per test : 3.5 seconds

memory limit per test : 256 megabytes

Polka has just won a maths competition in Novou! The prize is admirable — a great book called 'Card Tricks for Everyone.' 'Great!' he thought, 'I can finally use this old, dusted deck of cards that's always been lying unused on my desk!'

The first chapter of the book is 'How to Shuffle 𝑘 Cards in Any Order You Want.' It's basically a list of 𝑛 intricate methods of shuffling the deck of 𝑘 cards in a deterministic way. Specifically, the 𝑖-th recipe can be described as a permutation (𝑃𝑖,1,𝑃𝑖,2,…,𝑃𝑖,𝑘) of integers from 1 to 𝑘. If we enumerate the cards in the deck from 1 to 𝑘 from top to bottom, then 𝑃𝑖,𝑗 indicates the number of the 𝑗-th card from the top of the deck after the shuffle.

The day is short and Polka wants to learn only some of the tricks today. He will pick two integers 𝑙,𝑟 (1≤𝑙≤𝑟≤𝑛), and he will memorize each trick from the 𝑙-th to the 𝑟-th, inclusive. He will then take a sorted deck of 𝑘 cards and repeatedly apply random memorized tricks until he gets bored. He still likes maths, so he started wondering: how many different decks can he have after he stops shuffling it?

Polka still didn't choose the integers 𝑙 and 𝑟, but he is still curious. Therefore, he defined 𝑓(𝑙,𝑟) as the number of different decks he can get if he memorizes all the tricks between the 𝑙-th and the 𝑟-th, inclusive. What is the value of

∑𝑙=1𝑛∑𝑟=𝑙𝑛𝑓 (𝑙,𝑟)?

**Input Format**

The first line contains two integers  and  — the number of tricks and the number of cards in Polka’s deck.

Each of the following 𝑛 lines describes a single trick and is described by 𝑘 distinct integers  (1 ≤ ≤ 𝑘).

**Output Format**

Output the value of the sum described in the statement.

**Sample 1:**

|  |  |
| --- | --- |
| **Input** | **output** |
| 3 3  2 1 3  3 1 2  1 3 2 | 25 |