Competitive Programming and Contests

Holiday Planning

A tourist wants to spend the Christmas holiday traveling around Europe, visiting different cities. He buys a tour guide to Europe, which presents a different itinerary for each city. Each itinerary specifies how many different attractions can be visited per day. As an example, this is the itinerary for Florence

Day	1	2	3	4
number of attractions	3	2	1	4

This means that if you spend two days in Florence you will have the chance to visit $3 + 2 = 5$ different attractions. The tourist wants to visit as many attractions as he can, considering that he only has a limited number of days on vacation. Your task is to write a program that helps the tourist in organizing its holiday. Note that the tourist visits the attractions in the order provided by the guide, meaning that if he spends one day in Florence he will visit 3 attractions. He can not "cherry pick" the 4 attractions of the last day.

You are provided with the number of attractions you can visit for each of the D days, in each city. The number of cities is n. Your goal is to identify the maximum number of attractions the tourist can visit.

Input. The first line contains n and D. Then, the following n lines contain each D different integer values and describe the itineraries I.

Output. The maximum number of attractions that the tourist can visit.

Example

Input

```
2 3      // n D
3 2 1    // Florence
3 1 1    // London
```

Output

```
8   // 2 days in Florence, 1 day in London
```