Travel Agency (agency)

Michele is in charge of the Italian Travel Agency Customer Planning Crew, and each year he offers to his customers a travel package to a new destination. The package includes travel and accommodation for exactly T days, and the destination of this year is none other than Tourist City, which offers to visitors K main attractions.

He has already received requests for the package by N customers, each of which provided a specific schedule. The i-th customer would like to start the vacation on day d_i, additionally, during the j-th day of their vacation they would like to visit attraction $A_{i,j}$ (they can visit the same attraction multiple times).

Figure 1: POV: you're a customer of Michele.

Michele is well-connected and he has conventions with two hotels in the city. Each of these hotels organizes (independently) tours to one of the attractions in the city. Each day the hotel selects one of the attractions and provides to all residents a bus directed to that attraction.

Michele will arrange accommodation to everyone in one of the two hotels, and since he his providing them so many customers, he will also be allowed to choose the daily destinations of each hotel's bus trip.

Each person will always go to their desired attraction for the day, using the bus when available. However, if the bus is going on a different attraction, they will have to go on foot. If a customer has to go on foot at least once during their vacation, they will be returning home fatigued (Tourist City is very big!).

Michele cares about the well-being of his customers, so you should help him plan the accommodations and the bus destinations to minimize how many people will be fatigued at the end of their vacation!

Input

The first line contains three integers: N, T and K, respectively, the number of customers, the duration in days of the travel package and the number of attractions in Tourist City.

The following N lines contain $T+1$ integers each. The first integer on each line represents d_i, the starting day of the vacation of the i-th customer. The j-th integer out of the remaining T represents $A_{i,j}$, the desired attraction for the j-th day of the vacation of the i-th customer.

Output

You need to write a single line containing the minimum number of customers that will be fatigued at the end of their vacation.

Constraints

- $1 \leq N \leq 1000$.
- $1 \leq T \leq 100$.
- $1 \leq K \leq 100$.
- $1 \leq d_i \leq 10^5$ for every i.

- $1 \leq A_{i,k} \leq K$ for every i, k.

Examples

input	output
4 3 3 1 1 2 3 2 2 1 3 3 3 3 1 4 2 3 1	1

Explanation

Michele can assign the first and the third customer to the same hotel, and organize bus trips to attractions $1, 2, 3, 3, 1$ in the first five days. There is no way to assign the other two customers without having at least one of them fatigued.