

Overview: Given a certain number of artifacts, determine the maximum number of artifacts you can get through trading.

Description: Congratulations! After saving the world several times over and helping the Avengers (while gaining some valuable work experience with Loki on the side), S.H.I.E.L.D. is considering inducting you into their elite group of Avengers! However, before they draft you an offer letter complete with vacation time, health insurance, and 0.00001% equity, they have one final task for you to see if you are Avenger-material.

Throughout your travels and exploits, you met numerous friends and enemies - N , to be precise - many of whom own several valuable and rare artifacts, none of which are necessarily unique (3D printing technology has really advanced in the past few years!) You yourself have some of these artifacts, too. There are K types of artifacts. S.H.I.E.L.D. is keenly interested in these artifacts, and would like you to use your connections to obtain as many unique artifacts as possible.

You can trade an artifact of type A with your friend for an artifact of type B if your friend has no artifacts of type A and more than one artifact of type B , and you have more than one artifact of type A . Your friends will not trade with each other, only with you (you're that special).

Of course, as an expert programmer you have no intention of going forth and collecting artifacts without some forethought. After all, a dream job that allows you to chill with people like the Hulk on a daily basis is on the line! What you need, you've decided, is a program that calculates the maximum distinct number of types of artifacts you can own after some set of trading. Good luck - we're all rooting for you!

Filename: adv94.{java, cpp, c, cc, py}

Input: The first line contains a single integer T , the number of test cases.
The next line contains two integers, N and K , the number of friends and the number of different types of artifacts. Each artifact has a type represented by a unique integer from 1 to K .
The next $N+1$ lines contain T integers each. Each line represents a person; the P th integer on each line represents the number of artifact of type P that that person has. The first line is your counts, each of the N subsequent lines represents one of your friends.

Output: For each test case, output a single integer, the maximum distinct number of artifact types you can have after some sequence of trades.

Assumptions: The number of artifact types is at most 35.
The number of friends is at most 35.
The number of artifact of a specific type that a person can hold is at most 5.

Sample 2
Input #1: 1 5
 5 0 0 0 0
 1 2 0 0 0
 2 5
 3 1 0 0 0
 0 3 0 0 0
 1 0 2 2 0

Sample 1
Output #1: 3