第 1 題：Which One is More?

那一個比較多？

(Time Limit: 2 seconds)

問題描述 :

There are m classes in a school, and each class has n students, including boy and girl students. We arrange all the students in the field where each class is in a row. Thus, there are m rows. Suppose that all girls are arranged before any boys in each row. Please determine whether the school has more girls or boys according to the input data. In the input data, we use 0 and 1 to represent girl and boy, respectively. If there are more girls, please output 0; otherwise, the output is 1. Furthermore, if there is a tie, please output 2.

學校裡有 m 個班級，每個班級的學生有 n 個學生，包含男生和女生。所有學生在操場上以每班一列排隊。共有 m 列。假設在每一列中，所有女孩都排到男孩面前。請根據輸入資料來判斷學校裡女生比較多還是男生比較多。 在程式輸入資料中，我們使用 0 和 1 分別代表女生和男生。如果女生比較多，輸出 0；否則輸出 1。此外，如果一樣多，請輸出 2。

輸入說明:

The input consists of m+1 lines. The first line has two integers separated by a space, m (the number of classes) and n (the number of students in a class), respectively. Then, in each of the following m lines representing m class, some continuous 0's come before 1's, and each digit is separated by a space.

輸入由 m+1 行組成。 第一行有兩個整數，用空格分隔，m 和 n，分別代表班級的數量和班級中的學生數。 然後，在代表 m 班的以下 m 行中的每一行中，一些連續的 0 先出現(表示排在前面的女生)，接著再出現一些連續的 1(表示排在後面的男生)，每個數字由空格分隔。

輸出說明:

The output contains one line for the result, 0, 1, or 2. Please add a newline character at the end of the output.

輸出一行結果，0、1 或 2。輸出資料的結尾需加上一個換行字元。

範例:

Sample Input:	Sample Output:
4 8 0 0 0 0 0 1 1 1 0 0 0 0 0 0 1 1 0 0 0 0 1 1 1 1 0 0 0 0 0 0 0 1	0

第 2 題：Find Largest Value and Smallest Value

尋找最大和最小的值

(Time Limit: 2 seconds)

問題描述：

Write a program to find the largest and smallest values from the input data.
寫一個程式來找到輸入資料中的最大值和最小值。

輸入說明:

The input data contains 10 lines where each line has a number between -100 and 100.
測試輸入由 10 行組成。每一行為 1 個數字。數字限制在-100 和 100 之間。

輸出說明:

The output contains two lines: the first line is the largest value, and the second line is the smallest value. Please add a newline character at the end of the output.
輸出包含 2 行。第 1 行為最大值，第 2 行為最小值。輸出資料最後一行結尾須加上一個換行字元。

範例:

Sample Input:	Sample Output:
56 8 -6 -78 88 14 35 46 25 10	88 -78

第 3 題：**Factorial Number**

階乘數

(Time Limit: 2 seconds)

問題描述 :

Write a program to compute the factorial of any number N as follows:
N! = 1×2×3×…×(N−2)×(N−1)×N   (Note: 0! = 1)

撰寫一個程式，計算 N 的階乘，定義如下：
N! = 1×2×3×…×(N−2)×(N−1)×N   (注意: 0! = 1)

輸入說明:

The input consists of M test cases. The first line of the input contains only one positive integer M, followed by M test cases. Each case consists of exactly one line with one integer N, 0 ≤ N ≤ 12.

輸入由 M 個案例組成。輸入的第一行只包含一個正整數 M，後跟 M 個案例。每種案例恰好包含一行，其中為一個整數 N，0 ≤ N ≤ 12。

輸出說明:

For each case, output exactly one line which contains the corresponding factorial. Note that a newline character should be added at the end of the output.

對於每種案例，以一行輸出對應的階乘。輸出資料最後一行結尾須加上一個換行字元。

範例:

Sample Input:	Sample Output:
3 1 3 5	1 6 120

第 4 題：Pokers

撲克牌大小

(Time Limit: 2 seconds)

問題描述：

There are many kinds of games for playing cards. Now you are participating in a showdown game. You will get several cards and sort them according to their suits and values. Each card belongs to one of four suits, i.e., Spade (S), Heart (H), Diamond (D) and Club (C), and the suit rank is S > H > D > C. If the suits of cards are the same, then we compare their values. The cards of the same suit are ranked from highest to lowest values, i.e. 13 (King) > 12 (Queen) > 11 (Jack) > 10 > 9 > 8 > 7 > 6 > 5 > 4 > 3 > 2 > 1 (Ace). Note that 1 (Ace) is the lowest one.

這是一個撲克牌大小排序的遊戲，當你拿到一疊牌時，請依照大小順序將其排列出來。撲克牌每張牌各有其花色和數字，牌面大小比較主要以花色為主，黑桃>紅心>方塊>梅花；倘若花色相同時，則比較數字。每種花色的數字由大到小為：13 (King), 12 (Queen), 11 (Jack), 10, 9, 8, 7, 6, 5, 4, 3, 2, 1(Ace). 請注意 1 (Ace)是同一花色最小的一張。

輸入說明：

The first line of the input contains an integer n ($1 \le n \le 50$) indicating the number of test cases. For each test case, there is a line with several cards separated by spaces.

第一列的整數 n（ $1 \le n \le 50$），代表撲克牌的 n 疊，其後有 n 列，每列即為一疊牌的內容，每張牌分別以花色、數字來表示，其中 S 代表黑桃、H 代表紅心、D 代表方塊、 C 代表梅花。每筆資料分別以空白隔開。

輸出說明：

Output the sorted playing cards of test cases. Each line shows the sorted playing cards of each test case, and every two cards are separated by a space. A newline character should be added at the end of the output.

輸出排列過後的撲克牌。一行是一疊牌，每張牌以空白隔開。請注意輸出資料最後一行的結尾必須有一個換行字元。

範例：

Sample Input:	Sample Output:
4	S2 S1 H5 D4 C13
H5 D4 S2 C13 S1	S3 H7 D10 D8 C12
D8 S3 D10 C12 H7	S3 H6
H6 S3	S1 D11 C5
C5 D11 S1	

第 5 題：Making Change

零錢兌換

(Time Limit: 2 seconds)

問題描述：

A store owner frequently encounters such a problem that a customer requests a less number of coins to make the change. Let us help the store owner to solve this problem. Suppose that the owner has a variety of valued coins and has an infinite supply of each valued coin. We need to find the minimum number of coins to make the change. For example, we want to make the change for 5321 dollars, and the valued coins the customer expects are 1000, 200, 20, and 1. The store owner makes such a change of 1000*5+200*1+20*6+1*1, which involves 13 coins.

市場的老闆在進行金錢交易的時候經常會遇到顧客要求找的零錢總數愈少愈好，因此我們要幫助老闆解決此問題。假設老闆擁有各種金錢面額且每種面額總數無上限，因此老闆可以依據每位顧客所要求的兌換面額進行最少零錢總數的兌換。假設要找的錢為 5321 且顧客要求的面額為 1000 、 200 、 20 和 1 ，則老闆必須找給顧客 1000*5+200*1+20*6+1*1 共 13 個零錢總數。

輸入說明：

The first input line contains a number which indicates the number of test cases. The test data start from the second line. Each line of the test data includes several numbers of which two numbers are separated by a space. Among them, the last number (1~100000) is the value of making the change, and the remaining numbers are valued coins (each having a value between 1 and 100000) in descending order. The last valued coin must be 1.

輸入的第一行是代表測試資料有幾組，接著第二行開始為測試資料，每行測試資料的最後一個數字代表所要找的金錢(1~100000)，前面的數字則代表顧客所要求的兌換面額(1~100000)，面額須由大至小輸入且最後一個面額一定要為 1。數字間均有空白間隔。

輸出說明

For each test case, show the minimum number of coins to make the change in the first line; and in the following lines, show each valued coin in descending order and the corresponding number of coins. Use a space to separate these two numbers. Please add a newline character at the end of the output.

依序輸出每組測試資料的結果，且每組輸出資料的第一行代表最少的零錢數，之後依面額大小順序依序輸出每種面額以及其所兌換的個數，面額和個數之間必須有空白間隔。輸出資料最後一行結尾須加上一個換行字元。

範例:

Sample Input:	Sample Output:
2 1000 600 11 2 1 98654 600 22 3 1 54321	108 1000 98 600 1 11 4 2 5 1 0 109 600 90 22 14 3 4 1 1

範例:

第 6 題：Parking Fee

停車費計算

(Time Limit: 2 seconds)

Problem Description 問題描述 :

Assume that the rate for a parking lot is calculated in units of half an hour, and there is no charge for less than half an hour. Parking within 2 hours, 30 dollars per half hour; more than 2 hours, but less than 4 hours, 40 dollars per half hour; more than 4 hours, 60 dollars per half hour. Please write a program to calculate the total parking fee to be paid.

假設某個停車場的費率是以每半小時為單位計算，不滿半小時則不計費。 停車 2 小時以內，每半小時 30 元；超過 2 小時，但未滿 4 小時的部份，每半小時 40 元；超過 4 小時以上的部份，每半小時 60 元。請撰寫程式計算共需繳交的停車費。

Input 輸入說明:

The first line is a positive integer *N*, which means that there are a total of *N* test cases ($1 \leq N \leq 100$). Each test case contains two lines of time: starting time and leaving time (24-hour clock). Each line contains two integers, representing the hours and minutes. Starting time and leaving time are limited to the same day.

第一行為一正整數 *N*，表示共有 *N* 筆測試資料($1 \leq N \leq 100$)，每筆測試資料包含兩行時間：開始與離開時間（24 小時制）。每一行時間包含兩個整數，分別代表小時與分鐘，兩整數之間以空白隔開。開始時間與離開時間均限制於同一天之內。

Output 輸出說明:

Output the parking fee. Note that a newline character should be added at the end of the output.

輸出停車費，請注意輸出資料最後一行結尾須加上一個換行字元。

Example 範例:

Sample Input:	Sample Output:
2 10 23 15 20 13 30 14 20	340 30