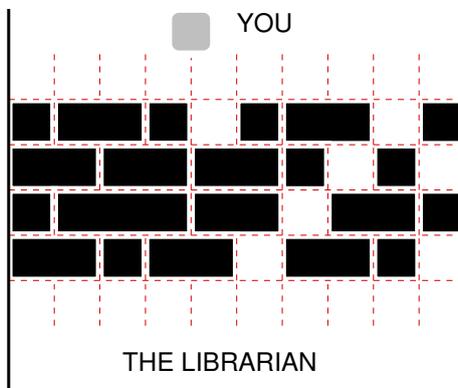




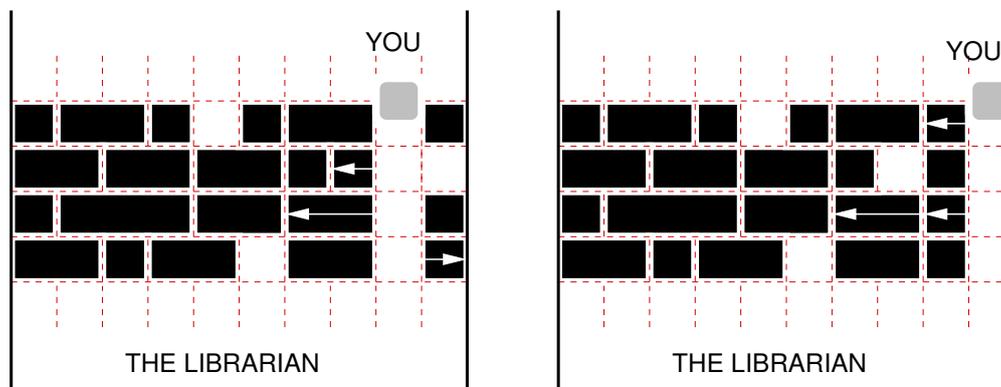
## K - Knowledge for the masses

You are in a library equipped with bookracks that move on rails. There are many parallel rails, i.e., the bookracks are organized in several rows, see figure:



The bookracks in the library. There is no passage to the librarian at the moment.

To borrow a book, you have to find the librarian, who seems to hide on the opposite side of the bookracks. Your task then is to move the racks along the rails so that a passage forms. Each rack has a certain integer width, and can be safely positioned at any integer point along the rail. (A rack does not block in a non-integer position and could accidentally move in either direction). The racks in a single row need not be contiguous — there can be arbitrary (though integer) space between two successive bookracks. A passage is formed at position  $k$  if there is no bookrack in the interval  $(k, k + 1)$  in any row (somehow you don't like the idea of trying to find a more sophisticated passage in this maze.)



The passages formed in the library: at position 8 (the left figure) and at position 9 (the right figure). Both attained at cost 3 by moving the bookracks marked with arrows.

Moving a rack requires a certain amount of effort on your part: moving it in either direction costs 1. This cost does not depend on the distance of the shift, which can be explained by a well known fact that static friction is considerably higher than kinetic friction. Still, you are here to borrow a book, not to work out, so you would like to form a passage (at any position) with as little effort as possible.

### Multiple Test Cases

The input contains several test cases. The first line of the input contains a positive integer  $Z \leq 15$ , denoting the number of test cases. Then  $Z$  test cases follow, each conforming to the format described in section *Single Instance Input*. For each test case, your program has to write an output conforming to the format described in section *Single Instance Output*.



### Single Instance Input

Two space separated integers  $R$  and  $L$  ( $1 \leq R, 1 \leq L \leq 10^6$ ) are given in the first line of an input instance. They denote the number of rows and the width of each and every row, respectively. Then  $R$  lines with rows descriptions follow. Each such line starts with an integer  $n_i$ , followed by  $n_i$  integers  $a_{i,1}, a_{i,2}, \dots, a_{i,n_i}$ , all separated by single spaces. Number  $a_{i,j}$  denotes either the width of a bookrack when  $a_{i,j} > 0$  or a unit of empty space when  $a_{i,j} = 0$ . Note that for any row  $i$ ,  $\sum_j a_{i,j}$  equals  $L$  minus the number of  $a_{i,j}$  that are equal to zero. You may assume that  $n_1 + n_2 + \dots + n_R \leq 2 * 10^7$ . Moreover, there will be at least one 0 in the description of each row, which means that creating a passage is always possible.

### Single Instance Output

In the first line, your program should output the minimum cost of making a passage through the bookracks. In the second line, it should print out the increasing sequence of all the positions at which a minimum cost passage can be formed.

### Example

Input	Output
1	3
4 10	8 9
8 1 2 1 0 1 2 0 1	
7 2 2 2 1 0 1 0	
6 1 3 2 0 2 1	
7 2 1 2 0 2 1 0	