Billy, a hard working programmer likes to sleep late on Saturdays. However, the neighborhood children like to play tag on Saturday mornings, and the chant they use to select who is "it" always wakes him up. The selection process goes like this.

The children gather in a circle, with one of them designated the chanter. The chanter points to the child to her left and sings the first word of the chant, then points to the next child in clockwise order and sings the second word of the chant. The child being pointed to when the last word of the chat is sung is removed from the circle. This process is repeated, beginning with the child immediately after (in clockwise order) the eliminated child, until only one child is remaining. That child is "it".

Assuming there are n children in the circle assigned the numbers 1 to n in clockwise order (with the chanter designated 1) and that the chant contains m words, write a program the children can use to determine the order in which the children are eliminated and the child who is "it". Then Billy can get the rest he needs.

Inputs
The first line will contain the number of chants to be sung. This will be followed by one line per chant containing the number of children in the circle, n, and the number of words in the chant, m, separated by a space.

Outputs
There will be two lines of output per chant. The first line will contain the number of children followed by the number of words in the chant. This will be followed by a line containing the childrens' numbers in the order they are removed from the circle followed by the number of the child who is "it". All outputs on a line will be separated by a space.

Sample input
2
11 4
6 3

Sample Output
11 4
5 9 2 7 1 8 4 3 6 11 10
6 3
4 1 5 3 6 2