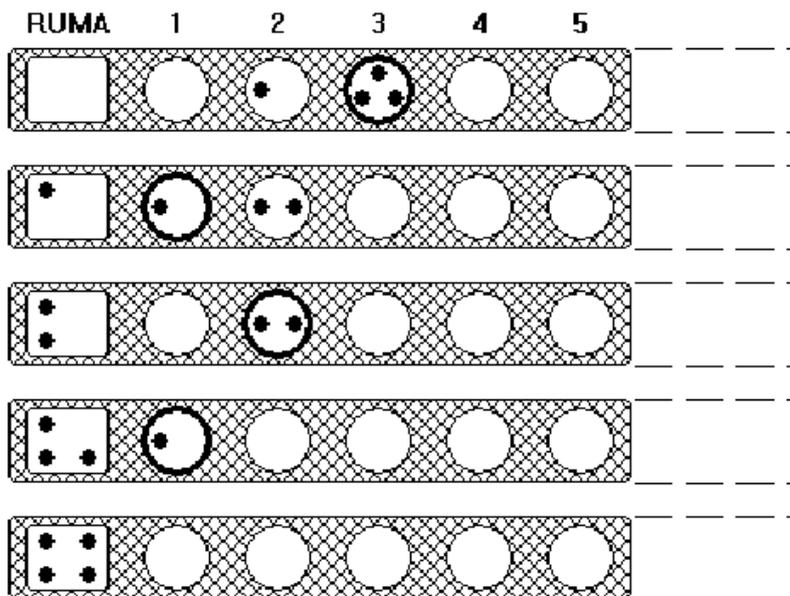


## 7095 Mancala

Mancala is a family of board games played around the world, sometimes called *sowing* games, or *count-and-capture* games, which describes the game play. One simple variant is a solitaire game called *Tchoukaillon* which was described by Véronique Gautheron. *Tchoukaillon* is played on a board with an arbitrary number of bins numbered 1, 2, ..., containing  $b[1]$ ,  $b[2]$ , ..., counters respectively and an extra empty bin called the *Roumba* on the left.



A single play consists on choosing a bin,  $n$ , for which  $b[n] = n$  (indicated by the darker circles in the diagram) and distributing the counters one per bin to the bins to the left including the *Roumba* (getting the next diagram below in the figure above). If there is no bin where  $b[n] = n$ , then the board is a *losing* board.

If there is a sequence of plays which takes the initial board distribution to one in which every counter is in the *Roumba*, the initial distribution is called a winnable board. In the example above, 0, 1, 3, ... is a winnable board (the “...” indicates all the bins to the right of **bin 3** contain **0**). For each total number of counters, there is a unique distribution of the counters to bins to make a winnable board for that total count (so 0, 1, 3, ... is the only winnable board with 4 counters).

Write a program which finds the winnable board for a total count input.

### Input

The first line of input contains a single integer  $P$ , ( $1 \leq P \leq 1000$ ), which is the number of data sets that follow. Each data set should be processed identically and independently.

Each data set consists of a single line of input. It contains the data set number,  $K$ , followed by a single space, followed by the total count  $N$  ( $1 \leq N \leq 2000$ ) of the winnable board to be found.

### Output

For each data set there will be multiple lines of output. The first line of output contains the data set number,  $K$ , followed by a single space, followed by the index of the last bin,  $B$ , with a non-zero count.

Input will be chosen so that  $B$  will be no more than 80. The first line of output for each dataset is followed by the bin counts  $b[1], b[2], \dots, b[B]$ , 10 per line separated by single spaces.

### Sample Input

```
3
1 4
2 57
3 500
```

### Sample Output

```
1 3
0 1 3
2 12
1 2 2 2 2 6 2 4 6 8
10 12
3 39
0 2 2 1 3 2 2 2 6 7
5 0 6 12 2 6 10 14 18 1
3 5 7 9 11 13 15 17 19 21
23 25 27 29 31 33 35 37 39
```