E: RunningMedian

For this problem, you will write a program that reads in a sequence of 32-bit *signed* integers. After each *odd-indexed* value is read, output the *median* (middle value) of the elements received so far.

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. The first line of each data set contains the data set number, followed by a space, followed by an odd decimal integer M, ($1 \leq M \leq 9999$), giving the total number of signed integers to be processed. The remaining line(s) in the dataset consists of the values, 10 per line, separated by a single space. The last line in the dataset may contain less than 10 values.

Output

For each data set the first line of output contains the data set number, a single space and the number of medians output (which *should* be one-half the number of input values plus one). The output medians will be on the following lines, 10 per line separated by a single space. The last line may have less than 10 elements, but at least 1 element.

There should be no blank lines in the output.

Sample Input

```
3
1 9
1 2 3 4 5 6 7 8 9
2 9
9 8 7 6 5 4 3 2 1
3 23
23 41 13 22 -3 24 -31 -11 -8 -7
3 5 103 211 -311 -45 -67 -73 -81 -99
-33 24 56
```

Sample Output

```
1 5
1 2 3 4 5
2 5
9 8 7 6 5
3 12
23 23 22 22 13 3 5 5 3 -3
-7 -3
```