Problem 1 – Happy Hunting

Professor Plum's wife loves egg hunts. But her nearsightedness forces her to use a non-optimal search strategy. She always goes to the egg nearest to her current location, even if it means backtracking during a hunt. Determine the order in which Mrs. Plum gathers eggs for a collection of egg hunts.

There are some things you should know. Two eggs will never be the same distance away. And Mrs. Plum lives in a one-dimensional world.

Input

The first line contains the number of hunts for which you have data. Each of the following lines contain the information about an egg hunt. The first number on each line is Mrs. Plum's current location in her 1-D world. The second number is the number of eggs in the hunt. The remaining numbers on the line are the locations of the eggs in the 1-D world. For example, in the first hunt in the example input below, Mrs. Plum is initially located at position 14, and the eggs are located at positions 20, 32, 10, and -1.

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2
14 4 20 32 10 -1
50 5 56 3 8 82 203
```

Output

For each hunt, print to standard output a case label and the locations of the eggs in the order Mrs. Plum collects them. For the example input given above, the output is:

```
Case 1: 10 20 32 -1
Case 2: 56 82 100 8 3 203
```