2009 A FRIEND IN DEED

The family firm of *Widget, Whatsit & Doodah* (est. 1862) has always inspired loyalty amongst its employees. As the Victorian age drew to a close and the mighty watermills that had previously powered production were retired, the founders gifted the stretch of river-bank they owned to their 'employees and friends'.

The river-bank, being long and wide-ranging in character, was valued in varying ways by the different employees. Each employee indicated how they would divide up the river-bank so that they felt each section was equal, although another employee (evaluating the land differently) might think that any given section was more or less than an equal share. A portion of the river-bank was then given to each employee, so that each received one of the sections they had personally indicated and no allocated sections overlapped (except possibly touching end-points).

For example, suppose the river-bank had been 7 oojiminies in length. The first employee might have felt that equal sections were made by splitting the river-bank at 1 and 6 oojiminies (i.e. into the sections 0-1, 1-6 and 6-7); the second that it should be split at 2 and 5; the third at 3 and 4. If the first employee was given the section from 0-1, the second from 5-7 and the third from 3-4, each would have received one of their own sections. Even though some of the river-bank is not allocated, each employee would feel that they had received a third!

SAMPLE INPUT

```
3 7
1 6
2 5
3 4
```

Write a program which, given how each employee values the river-bank, calculates how to distribute the land. The first line of the input will contain a pair of integers, e $(2 \le e \le 1000)$ followed by l $(e \le l < 2^{31})$, indicating the number of employees followed by the length of the river-bank. This will be followed by e lines. The i^{th} of these lines will contain $e-1$ integers (between 0 and l exclusive) indicating, in increasing order, the splitting points indicated by employee i. No section, as defined by these splitting points, will ever have a zero length.

You should output e lines, the i^{th} of which should give the start and end of the section allocated to employee i.

SAMPLE OUTPUT

```
0 1
5 7
3 4
```