

**Exercise – Deck of Cards**

You are given a deck of  $n$  custom made cards, denoted by  $0, \dots, n-1$  going from the top of the deck to the bottom. Each card  $i$  has a number  $v_i$  which represents its value. You play a strange game with your younger brother, where he tells you his favourite number  $k$  and you need to find cards  $i$  and  $j$  such that  $i \leq j$  and  $\sum_{\ell=i}^j v_\ell = k$ . Since you are older than your brother, you know that finding such a subset of the deck won't always be possible. Thus, you want to write a program which finds two cards  $i$  and  $j$  such that the sum  $\sum_{\ell=i}^j v_\ell$  is as close as possible to  $k$ . If there are multiple candidates for the solution, find the one which is lexicographically smallest.

**Input** The first line of the input contains the number  $t \leq 80$  of test cases. Each of the  $t$  test cases is described as follows.

- It starts with a line that contains two integers  $n$   $k$ , separated by a space, where  $n$  denotes the number of cards, and such that  $1 \leq n \leq 10^5$  and  $0 \leq k \leq 2^{30}$ .
- The following line defines the values of the cards  $0$  to  $n-1$ , in that order. It contains  $n$  integers  $v_0 \dots v_{n-1}$ , separated by a space, and such that  $0 \leq v_i \leq 2^{30}$ , for  $i \in \{0, \dots, n-1\}$ . It is guaranteed that  $\sum_{i=0}^{n-1} v_i \leq 2^{30}$ .

**Output** A solution is a pair  $i, j$  of cards with  $i \leq j$ . We define the value of the solution  $i, j$  as

$$\text{val}(i, j) := \left| k - \sum_{\ell=i}^j v_\ell \right|.$$

For each test case output a single line containing two numbers  $i$  and  $j$ , separated by a space, corresponding to the solution  $i, j$  with the smallest value. If there are multiple such solutions, output the lexicographically smallest one.

*Note:*  $(i, j)$  is lexicographically smaller than  $(i', j')$  iff  $i < i'$  or  $i = i'$  and  $j < j'$ .

**Points** There are three groups of test sets. For each group there is also a corresponding hidden test set. Overall, you can achieve 100 points.

1. For the first group of test sets, worth 20 points, and the corresponding hidden test set, worth 5 points, you may assume  $n \leq 200$ .
2. For the second group of test sets, worth 40 points, and the corresponding hidden test set, worth 10 points, you may assume  $n \leq 3000$ .
3. For the third group of test sets, worth 20 points, and the corresponding hidden test set, worth 5 points, there are no additional assumptions.

Corresponding sample test sets are contained in `testi.in/out`, for  $i \in \{1, 2, 3\}$ .

### Sample Input

```
3
5 1
3 1 5 2 1
5 6
3 2 5 2 3
5 22
2 3 4 6 2
```

### Sample Output

```
1 1
0 1
0 4
```