31ST INTERNATIONAL
OLYMPIAD IN INFORMATICS
4-11 AUGUST 2019
BAKU · AZERBAIJAN

shoes
Day 1 Tasks
Kyrgyz (KGZ)

Бут кийимдерди иреттөө

Аднандын Бакуда чоң бут кийим дүкөнү бар. n жуп бут кийим сапта турат. Ар бир жуптун бирдей размерде сол жана оң даанасы бар (ошондо $2n$ даана болот). Алар солдон оңго 0дөн $(2n-1)$ге чейин индекстелген. Бирок бут кийимдердин жуптары ар кайсыл жерде турушу мүмкүн. Аднан бут кийимдерди жуп жубу менен (**туура жайгашууда**) иреттеши керек. **туура жайгашуу** ар бир i үчүн $(0 \le i \le n-1)$ төмөндөгүдөй болуш керек:

- $2i$ индекстеги жана $(2i+1)$ индекстеги бут кийимдин размери бирдей болуш керек.
- $2i$ индекстеги сол,
- $(2i+1)$ индекстеги оң бут кийим болуш керек.

Аднан бир кадамда эки жакын турган бут кийимди алмаштыра алат. Аднан эң аз канча кадамда бут кийимдерди **туура жайгаштырат**.

Implementation details

You should implement the following procedure:

```
int64 count_swaps(int[] S)
```

- S: an array of $2n$ integers. For each i $(0 \le i \le 2n-1)$, $S[i]$ is a non-zero value that describes the shoe initially placed at position i. The absolute value of $S[i]$ is the size of the shoe. The size of the shoe does not exceed n. If $S[i] < 0$, the shoe at position i is a left shoe; otherwise, it is a right shoe.
- This procedure should return the minimum number of swaps (of adjacent shoes) that need to be performed in order to obtain a valid arrangement.
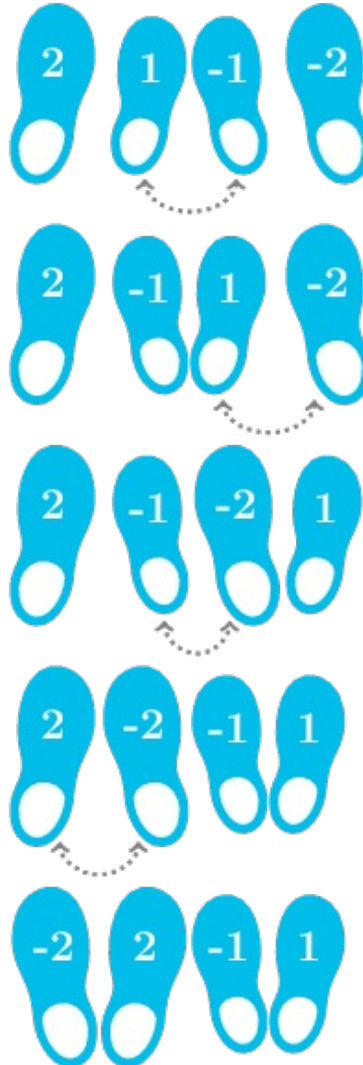
Examples

Example 1

Consider the following call:

```
count_swaps([2, 1, -1, -2])
```

Adnan can obtain a valid arrangement in 4 swaps.

For instance, he can first swap shoes 1 and -1, then 1 and -2, then -1 and -2, and finally 2 and -2. He would then obtain the following valid arrangement: $[-2, 2, -1, 1]$. It is not possible to obtain any valid arrangement with less than 4 swaps. Therefore, the procedure should return 4.

Example 2

In the following example, all the shoes have the same size:

```
count_swaps([-2, 2, 2, -2, -2, 2])
```

Adnan can swap the shoes at positions 2 and 3 to obtain the valid arrangement $[-2, 2, -2, 2, -2, 2]$, so the procedure should return 1.

Constraints

- $1 \leq n \leq 100\,000$

- For each i ($0 \leq i \leq 2n-1$), $1 \leq |S[i]| \leq n$. Here, $|x|$ denotes the absolute value of x.
- A valid arrangement of the shoes can be obtained by performing some sequence of swaps.

Subtasks

1. (10 points) $n = 1$
2. (20 points) $n \leq 8$
3. (20 points) All the shoes are of the same size.
4. (15 points) All shoes at positions $0, \ldots, n-1$ are left shoes, and all shoes at positions $n, \ldots, 2n-1$ are right shoes. Also, for each i ($0 \leq i \leq n-1$), the shoes at positions i and $i+n$ are of the same size.
5. (20 points) $n \leq 1000$
6. (15 points) No additional constraints.

Sample grader

The sample grader reads the input in the following format:

- line 1: n
- line 2: $S[0]$ $S[1]$ $S[2]$ ... $S[2n-1]$

The sample grader outputs a single line containing the return value of `count_swaps`.