Standard​ ​Median​ ​Deviation

We are interested in a new type of deviation, called “Standard Median Deviation”. Calculation procedure is described below,

1. list of **N** numbers **a1**, **a2**, ....., **aN**.

2. Sort the list and the new list is **s1**, **s2**, ......, **sN**.

3. if **N** is even there are two medians **sN/2** and **sN/2+1**. total deviation **TD** is **∑i = 1 to N/2(sN/2 - si) + ∑j = N/2 + 1 to N(sj - sN/2+1)**.

4. if **N** is odd **s⌈N/2⌉** is the only median. total deviation **TD** is **∑i = 1 to N|s⌈N/2⌉ - si|**.

5. Standard Median Deviation is **TD / N**.

You only have to calculate the total deviation **TD**, after any of the three operations below.

a. **1** **A**, means you have to insert the integer number **A** to the list.

b. **2 A**, means you have to remove the first integer **A** from the list if **A** exists.

c. **3 A B**, means you have to replace the first integer **A** from the list to **B** if **A** exists.

**Input :**

Number of operations **O** ( **1** to **10^5**). Next O lines have one of the above three operations as follows,

**1 A,** operation a. **A** is **1** to **10^9**

**2 A**, operation b, **A** is **1** to **10^9**

**3 A B**, operation c, **A** and **B** both are **1** to **10^9**

**Output :**

**O** lines of integer number representing total deviation **TD** of the current number list.

**Sample Input :**

3

1 1

1 2

1 9

**Sample output :**

0

0

8