

## Problem 4 – Light the Torches

Father Haralambi is an Orthodox priest, who is serving in the small Elin Pelinian monastery. During the day, Father Haralambi mostly prays and, since he's a casual fisherman, on Sundays, he goes to the river near the monastery and tries to catch his own dinner. In the evenings, it's Father Haralambi's duty, to go down to the unusually large monastery basement and light the torches in each room. He is a good Orthodox priest and as such he is not fully sober in the evenings, thus he sometimes is not able to light all the torches. Every morning, after the morning prayer, the father counts the rooms that are dark and using a certain formula that he created, calculates the number of prayers that he has to say during the day, in order to make up for the rooms that he wasn't able to reach. Your job is to create a program, which will monitor Father Haralambi's movements in the basement and automate the calculation process, thus allowing him to focus on praying, rather than lose precious time doing math.

The monastery's basement is **linear** and there is **only one single door** connecting two adjacent rooms. The only entrance to the basement, is in the room that's **in the middle of the basement** – the rooms on the left from the entrance will always be equal to the number of rooms on the right from the entrance. **The total number of rooms will be an odd number N.**

You will receive a **string of characters**, which will tell you which rooms are currently lit and which rooms are dark. The string can have a **length less than or equal** to the **number** of rooms. It will contain only **two types of characters**, **'L' for light** and **'D' for dark** and each character will represent the state of **a single room**.

Your first task is to go through all the rooms, starting from the **leftmost room** (room 0), and **update** the state of each room, using the **characters** in the string **from left to right**. If you reach the end of the string before you reach the end of the basement, **go back** at the beginning of the string **and continue**.

After the rooms' state has been updated, Father Haralambi will enter the basement **from the only entrance** and you are to begin monitoring his movements. The movements will be represented as a **series of commands**, each provided **on a separate line**. The possible commands are **RIGHT X**, **LEFT X** and **END**, with **X** being the **number of rooms** that the priest passes through and **LEFT/RIGHT** being the **direction** that he's walking in.

For example, if the priest is currently in **room 2** and the command **RIGHT 3** is received that will mean that the priest will end up in **room 6** – he passes through 3 rooms and ends up in the next one. Respectfully, if he is currently in **room 5** and you receive the command **LEFT 3**, the priest will wind up in room 1. When the priest **stops walking**, he will **update** the **state** of the current room. If the room is dark, then he will light it up and if the room is already lit, he will stumble upon the torch and the room will become dark. The priest **updates only** the rooms that he **ends up in** and **not** the ones that **he passes through**, while trying to get there. Also, don't forget that the priest is not quite sober, so he may try to go to **rooms that do not exist**. For example, if he is in **room 0**, he does a **RIGHT 6** movement, but the basement has **only 5** total rooms, then he will **end up** in the last room on the right, which will be **room 4**. If the priest **does not change** rooms, after you receive a command, then the **state** of the current room is **not changed**.

When you receive the **END command**, that means the priest has fallen asleep and you should start calculating his prayers for the next day.

Once the priest has fallen asleep, go through the entire basement and **count the rooms that are still dark**. The total number of prayers that Father Haralambi has to say, when he wakes up, is equal to the **ASCII code** of the character **'D'** **multiplied** by the **number of dark** rooms.

## Input

The input data should be read from the console.

- On the **first line** you will receive an **ODD number N**, specifying the **total number of rooms in the basement**.
- On the **second line**, you will receive a **string**, containing a **series of 'L' and 'D' characters**.
- On the **next lines**, you will receive a **series of commands** in the described formats. **The input ends when the END command is received.**

The input data will always be valid and in the format described. There is no need to check it explicitly.

## Output

The output should be printed on the console and should consist of a **single number**. The number is the **total number of prays**.

## Constraints

- The number N will be a valid ODD integer in the range [1 ... 99].
- The string has length less than or equal to N and will NOT contain any white spaces.
- Each command will be provided on a separate line in the format: RIGHT {X} / LEFT {X} / END
- The number X will always be a valid integer in the range [0 ... 100].
- The number of commands will be in the range [1 ... 202].
- Allowed working time for your program: 0.25 seconds.
- Allowed memory: 16 MB.

## Example

Input	Output	Comments																									
5 LD LEFT 0 LEFT 20 RIGHT 2 LEFT 2 END	0	<p>5 total rooms and string “LD” (The grey cell marks the current position of the priest):</p> <table><tr><td>L</td><td>D</td><td>L</td><td>D</td><td>L</td></tr></table> <p><b>LEFT 0</b> – the priest moves to the <b>Left</b> passing through <b>0 rooms</b>:</p> <table><tr><td>L</td><td>L</td><td>L</td><td>D</td><td>L</td></tr></table> <p><b>LEFT 20</b> – the priest goes <b>as far Left as he can</b>:</p> <table><tr><td>D</td><td>L</td><td>L</td><td>D</td><td>L</td></tr></table> <p><b>RIGHT 2</b> – the priest goes to the <b>Right</b> passing through <b>2 rooms</b>:</p> <table><tr><td>D</td><td>L</td><td>L</td><td>L</td><td>L</td></tr></table> <p><b>LEFT 2</b> – priest goes to the <b>Left</b> passing through <b>2 rooms</b>:</p> <table><tr><td>L</td><td>L</td><td>L</td><td>D</td><td>L</td></tr></table> <p><b>END</b> – we <b>stop</b> receiving commands, we calculate the number of prays and we print the result on the console: 0 Dark Rooms * (ASCII code of 'D') = 0</p>	L	D	L	D	L	L	L	L	D	L	D	L	L	D	L	D	L	L	L	L	L	L	L	D	L
L	D	L	D	L																							
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