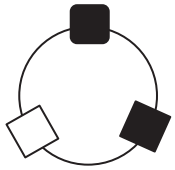
11. Rings

Program Name: Rings.java Input File: rings.dat

Archaeologists have uncovered some ancient rings containing black and white stones near an ancient campsite in east Texas. It is believed that these rings were used as a method to record a person's "worth" using a binary number system. However, it is not known if white stones represent a one and the black stones represent a zero or if the black stones represent a one and the white stones represent a zero. It is also not known where the starting point is located on the ring.

You are to write a program that will determine the minimum and maximum "worth" of each ring in base 10. For example, the ring could contain these rocks:



Depending on the starting point, the rings could be read as follows with these values where `B` is for black and `W` is for white:

Order if read clockwise	**Worth if `B` is 1 and `W` is 0**	**Worth if `W` is 1 and `B` is 0**
BBW	6	1
BWB	5	2
WBB	3	4
Order if read counter-clockwise		
BWB	5	2
WBB	3	4
BBW	6	1

In this case, the maximum worth is 6 and the minimum worth is 1.

Input

The first line of input will contain a single integer `n` that indicates the number of rings to follow. Each of the following `n` lines will contain a string composed of at least one but no more than thirty `W` and `B` characters indicating white rocks and black rocks, respectively. Each string represents a ring whose starting point and reading order is unknown, as described above.

Output

You will output the minimum value, a space, and the maximum value for each ring.

Example Input File

```
4
BBW
BBBW
BBWBB
BWWBB
```

Example Output to Screen

```
1 6
1 14
1 30
3 28
```