F Lunchbox Hunt

Devon has prepared an extravagant lunch to celebrate the one year anniversary of TJ IOI Inc.! However, to make things more interesting, he has hidden the lunchbox containing his lunch somewhere inside the huge, single-level parking garage.

Alex has decided to go on a treasure hunt to find Devon's hidden lunchbox. Fortunately for Alex, Devon has left behind a set of instructions specifying the location of his lunchbox. The instructions consist of a starting location (x_0, y_0) and N $(1 \leq N \leq 1,000,000)$ queries. Each query consists of a direction specified by the characters 'N', 'S', 'E', and 'W', and a non-negative distance. Help Alex find the coordinates of the location of Devon's lunchbox.

Note: Alex's position (x, y) at any time is guaranteed to remain within $-1,000,000,000 \leq x, y \leq 1,000,000,000$.

SHORT NAME: `lunchbox`

INPUT FORMAT:
The first line will contain three integers N, x_0, and y_0. The following N lines will describe a query consisting of a character ('N', 'S', 'E', 'W') and a non-negative integer distance.

Note: North corresponds to up, south corresponds to down, east corresponds to right, and west corresponds to left.

OUTPUT FORMAT:
The output should consist of two integers separated by a space. The first integer is the final x coordinate and the second integer is the final y coordinate.

SAMPLE INPUT:

```
4 6 -2
N 3
S 5
W 2
W 1
```

SAMPLE OUTPUT:

```
3 -4
```