

Shorten the Path

You're lost in a city where the streets are laid out in a North-South and East-West grid, and each parallel street is \$1\$ unit apart. You ask a stranger for directions, but the route they give you is not optimal! Their directions will get you from your origin to your destination, but they also take you far out of the way.

Given a string of directions composed of the characters \$N\$ (North), \$E\$ (East), \$S\$ (South), and \$W\$ (West), minimize the directions that will take you to your destination. Then sort the directions lexicographically and print them.

Note: You can assume that the destination will not be the origin.

Input Format

A string composed of the four directional characters: \$N\$, \$E\$, \$S\$, and \$W\$.

Constraints

- \$1 \leq |directions| \leq 100000\$
- \$origin \neq destination\$

Output Format

Print the lexicographically sorted string of minimal directions.

Sample Input

NESNWES

Sample Output

E

Explanation

