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Introduction to Competitive Programming
Week 1

Welcome to competitive programming

Problem example

Training resources & online contests

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Problem E. Easy Arithmetic

Input file:	easy.in
Output file:	easy.out
Time limit:	2 seconds
Memory limit:	256 megabytes

Eva is a third-grade elementary school student. She has just learned how to perform addition and subtraction of arbitrary-precision integers. Her homework is to evaluate some expressions. It is boring, so she decided to add a little trick to the homework. Eva wants to add some plus and minus signs to the expression to make its value as large as possible.

Input

The single line of the input file contains the original arithmetic expression. It contains only digits, plus ('+') and minus ('−') signs.

The original expression is correct, that is:
- numbers have no leading zeroes;
- there are no two consecutive signs;
- the last character of the expression is a digit.

The length of the original expression does not exceed 1000 characters.

Output

Output a single line — the original expression with some plus and minus signs added. Output expression must satisfy the same correctness constraints as the original one. Its value must be as large as possible.

Examples

easy.in	easy.out
10+20−30	10+20−3+0
−3−4−1	−3−4−1
+10	+10

Short statement

✔ We need to add pluses and minuses to input expression
to maximize the result. We can split numbers, but result numbers must have
no leading zeroes

Input	Output	Outcome
10+20-3030	10+20-3+030	Wrong answer
10+20-3030	10+20-30+30	Wrong answer
10+20-3030	10+20-3+0+30	OK

Solution

Input	What we need to do
+$d_1d_2...d_k$	OK, it's maximum
-$d_1d_2...d_k$	-d_1+$d_2...d_k$
IF d_2 = 0	-d_1+0+$d_3...d_k$

Code

```
string input;
cin >> input;
string res = "";
for (size_t i = 0; i < input.size(); i++) {
    res += input[i];
    if (input[i] == '-') {
        i++;
        res += input[i];
        i++;
        while (i < input.size() && input[i] == '0') {
            res += "+0";
            i++;
        }
        if (i < input.size() && input[i] >= '1' && input[i] <= '9') {
            res += "+";
        }
        i--;
    }
}
cout << res << endl;
```

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Resources

☑ **codeforces.com**

- online contests

☑ **neerc.ifmo.ru/trains**

- trainings

☑ **opentrains.ru**

- trainings

☑ **acm.timus.ru**

- 1099 problems

☑ **contest.yandex.ru**

- online contests

- trainings

☑ **topcoder.com**

- online contests

☑ **code.google.com/codejam**

- online contests