

ACM Pacific NW Region Programming Contest

15 November 2003

Problem F: Grandma's "Help"

Your grandmother wanted to help you by doing data entry in your science project, so you gave her the hard-copy print-outs and sat her at your computer. She learned touch typing as a young woman preparing to be a secretary, and she is *very* good at it, reproducing exactly the text and its spacing.

There is one problem, though. She learned typing on the typewriters in use in the 1950s. Numbers were available only in the number row above the alphabetic keys (just as on present keyboards), and they ran from 2 to 9. For the number one (1) the typist used a lower-case el (l), and for the number zero (0) she used an upper-case oh (O).

The data include alphabetic text segments as well as numeric. That means that a simple "find and replace" edit is inappropriate.

Write the filter that will generate appropriate numeric data according to the following context rule: a candidate character ("l" or "O") should be replaced with the appropriate numeric character if it is in a white-space delimited field as described here:

- The field may begin with a minus sign or a plus sign.
- The field may contain one decimal point in any position, or it may have none.
- All other characters are either numeric digits, or candidate characters.

The output is to be identical to the input except for this filtering, including reproducing the spacing.

INPUT: Read from file f.in

The input text is terminated by the end-of-file, which may or may not be preceded by an end-of-line. Note that you are reproducing the input text *exactly* except for filtering out the use of "l" for "1" and the use of "O" for "0". **Warning:** use the *specified* context rule as stated above, **not** what you would have chosen as the transformation rules. For instance, this will *not* handle exponential notation correctly or arithmetic expressions without embedded blanks.

Example Input:

```
123.05 liters water           Use distilled or at least deionized
11.001 ml O-negative blood   Note:  negative on ALL Rh factors
13.201 ml O-positive blood   Use procedure 000.0012.1234
```

Example Output:

```
123.05 liters water           Use distilled or at least deionized
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```