333   Recognizing Good ISBNs

Most books now published are assigned a code which uniquely identifies the book. The International Standard Book Number, or ISBN, is normally a sequence of 10 decimal digits, but in some cases, the capital letter X may also appear as the tenth digit. Hyphens are included at various places in the ISBN to make them easier to read, but have no other significance. The sample input and expected output shown below illustrate many valid, and a few invalid, forms for ISBNs.

Actually, only the first nine digits in an ISBN are used to identify a book. The tenth character serves as a check digit to verify that the preceding 9 digits are correctly formed. This check digit is selected so that the value computed as shown in the following algorithm is evenly divisible by 11. Since the check digit may sometimes need to be as large as 10 to guarantee divisibility by 11, a special symbol was selected by the ISBN designers to represent 10, and that is the role played by X.

The algorithm used to check an ISBN is relatively simple. Two sums, $s1$ and $s2$, are computed over the digits of the ISBN, with $s2$ being the sum of the partial sums in $s1$ after each digit of the ISBN is added to it. The ISBN is correct if the final value of $s2$ is evenly divisible by 11.

An example will clarify the procedure. Consider the (correct) ISBN 0-13-162959-X (for Tanenbaum's Computer Networks). First look at the calculation of $s1$:

```
          ----------------------------------------------------------------
          digits in the ISBN   0   1   3   1   6   2   9   5   9   10(X)
          partial sums         0   1   4   5  11  13  22  27  36   46
          ----------------------------------------------------------------
```

The calculation of $s2$ is done by computing the total of the partial sums in the calculation of $s1$:

```
          ----------------------------------------------------------------
          s2 (running totals)  0   1   5  10  21  34  56  83  119  165
          ----------------------------------------------------------------
```

We now verify the correctness of the ISBN by noting that 165 is, indeed, evenly divisible by 11.

Input

The input data for this problem will contain one candidate ISBN per line of input, perhaps preceded and/or followed by additional spaces. No line will contain more than 80 characters, but the candidate ISBN may contain illegal characters, and more or fewer than the required 10 digits. Valid ISBNs may include hyphens at arbitrary locations. The end of file marks the end of the input data.

Output

The output should include a display of the candidate ISBN and a statement of whether it is legal or illegal. The expected output shown below illustrates the expected form.

Sample Input

```
0-89237-010-6
0-8306-3637-4
  0-06-017758-6
    This_is_garbage
```

```
1-56884-030-6
    0-8230-2571-3
    0-345-31386-0
    0-671-88858-7
    0-8104-5687-7
    0-671-74119-5
    0-812-52030-0
    0-345-24865-1-150
0-452-26740-4
    0-13-139072-4
    0-1315-2447-X
```

Sample Output

```
0-89237-010-6 is correct.
0-8306-3637-4 is correct.
0-06-017758-6 is correct.
This_is_garbage is incorrect.
1-56884-030-6 is correct.
0-8230-2571-3 is correct.
0-345-31386-0 is correct.
0-671-88858-7 is correct.
0-8104-5687-7 is correct.
0-671-74119-5 is correct.
0-812-52030-0 is correct.
0-345-24865-1-150 is incorrect.
0-452-26740-4 is correct.
0-13-139072-4 is correct.
0-1315-2447-X is correct.
```