

Write a program that implements a deterministic finite automaton that scans through a text and checks whether this text has the following minimum qualities:

1. It consists of one or several sentences.
2. Each sentence ends with a dot ("."), an exclamation mark ("!") or a question mark ("?").
3. Inside a sentence, a colon (":"), a comma (","), or a semicolon (";") can occur.
4. Each sentence starts with a word in which the first character is an upper case letter.
5. A word can start with any letter followed by arbitrarily many lower case letters.
6. After a word there is a space or one of the characters mentioned in points 2 and 3.
7. Numbers can occur inside the sentence and every number is either a zero ("0") or one of the digits "1", "2", "3", "4", "5", "6", "7", "8", "9" followed by arbitrary many additional digits.
8. There should be no spaces at the beginning of the first sentence and no double spaces at all. Spaces can occur after sentences.
9. Hyphens are permitted, but only inside a word, so there should be at least one letter before and at least one letter after the hyphen. A word may contain multiple hyphens.
10. Apostrophes can appear inside a word or at the end of a word, written as a single quote, as in the sample sentence: His brothers' cars are green and he's going to his sister's house.

The program should be interactive, that is, a user can continue to enter sentences until some signal to quit is entered (you can specify that signal for the user when the program begins). Note that the "words" in the sentence need not be real English words—they need only conform to the specifications above.

The automaton should read characters from input one at a time, moving through the states of the automaton as appropriate. The processing of a sentence ends when all input is exhausted. If the automaton ends in a final state, then the program prints "The sentence is syntactically correct." Otherwise, it prints, "The sentence is syntactically incorrect."

Sample input/output pairs:

Tljoj poipjas amofjowie po, the words do not need to be real words.  
The sentence is syntactically correct.

123456789: numbers are not permitted to start a sentence.  
The sentence is syntactically incorrect.

Inside a sentence, 123456789 is ok. Also 0 is ok.  
The sentence is syntactically correct.

Hyphen-sentences are allowed.  
The sentence is syntactically incorrect.

Double-hyphenation is illegal and should remain so.  
The sentence is syntactically incorrect.

What are semicolons? Just signs; they are inside sentences.  
The sentence is syntactically correct.

A dot after 25. That is ok.  
The sentence is syntactically correct.

A semicolon after 25; that is also ok.  
The sentence is syntactically correct.

Temperatures between -140 and +20 degrees occur on Mars.  
The sentence is syntactically incorrect.

This sentence contains 17+4 and should be rejected.  
The sentence is syntactically incorrect.

A brother's wife is a sister-in-law.  
The sentence is syntactically correct.

.The dot is at the end, not at the beginning of a sentence  
The sentence is syntactically incorrect.

No blanks at the beginning.  
The sentence is syntactically incorrect.

But there can be blanks at the end.  
The sentence is syntactically correct.

My name is Bond, James Bond.  
The sentence is syntactically correct.

My number is 007.  
The sentence is syntactically incorrect.

Is this a sentence? No, this are two sentences.  
The sentence is syntactically correct.

This is wrong,  
The sentence is syntactically incorrect.

No digit88 should follow immediately a text.  
The sentence is syntactically incorrect.

No digit should follow immediately a text.  
The sentence is syntactically correct.

The phone number is 6 5 1 6 7 3 5 4.  
The sentence is syntactically correct.

The phone number is 0 1 2 3 4 5 6 7.  
The sentence is syntactically correct.

Do not PUT several capitals into one word.  
The sentence is syntactically incorrect.

End of Program.