

**MATH 321 – AUTOMATA THEORY
AND FORMAL LANGUAGES (FALL 2019)
ASSIGNMENT#1**

Due: October 25, 2019 /11:59 pm
(Submit your assignment to BB)

In this assignment, you need to write a Java program that performs the following operations on an input file. You need to use regular expressions and Java Regex package to define patterns for searching/manipulating strings. The program should perform some operations on a given input file, make necessary changes on all matching strings and produce a new output file. The input file contains one sentence per line. Please submit your source code, jar file, an input file, the output file produced by your program, and your report to Blackboard before the deadline. Your report should describe how your jar file should be included and used in a Java project.

- 1) If two words are separated with the conjunctions “and” or “or”, concatenate them with the symbols “&” or “/” respectively:

Food or drink → Food/drink
Food and drink → Food&drink

- 2) Pluralize all words by applying the first two rules explained at <https://www.grammarly.com/blog/plural-nouns/>

- 3) If a sentence contains the verb “said” as the second to the last word, all preceding words should be quoted:

Here comes the boy said John. → “Here comes the boy” said John.

- 4) If a word except the first word starts with a capital letter or written in mixed case, the word should be converted to all lowercase letters. The first word should start with a capital letter:

john WaLKs into A New world. → John walks into a new world.

- 5) If a sentence is terminated with more than one dot “.” or with any other punctuation, replace all these punctuations with a single dot:

Here is a sentence...→ Here is a sentence.
Here is another sentence;?? → Here is another sentence.

- 6) If a word contains the same number consecutively, replace these repetitive numbers with its roman form:

John22Jr → JohnIIJr
Mary555St → MaryVSt

- 7) Append 'ed' to all words that end with 'lk' or 'ch', and append 'ged' to all words that end with 'eg' and 'ag':

talk→talked

drag→dragged

- 8) If a noun phrase contains a possession (via an apostrophe and an 's'), convert it to a new form:

Mary's swimsuit → the swimsuit of Mary

- 9) If a sentence contains a phone number in the form of "(areacode) phone number", convert it into a new form:

(216) 765 8765 → Phone: 216-7658765

- 10) If a word starts and ends with punctuations, convert it into a new form:

!!!cats;;; → cats!!!;;;)