Compilers – Assignment 1

Problem 1 (5*2 = 10 Marks):

Write regular definitions for the following languages:

a) All strings of lowercase letters that contain the five vowels in order.

b) All strings of lowercase letters in which the letters are in ascending lexicographic order.

c) Comments, consisting of a string surrounded by /* and */, without an intervening */, unless it is inside double-quotes (").

d) All strings of digits with no repeated digits. *Hint*: Try this problem first with a few digits, such as $\{0, 1, 2\}$.

e) All strings of digits with at most one repeated digit.

Problem 2 (15 Marks)

Write a Lex program and demonstrate it's working for the following problem. We are given a plain text document that uses dates in various formats. For example dates could be mentioned in dd/mm/yy or in dd/mm/yyyy or in dd-mm-yy or in dd-mm-yyyy or in dd-month-yy (month may be like Feb or February) or in dd-month-yyyy or something like 5th Oct 2016, or like October 5, 2017.   We want to convert these various formats in to a fixed format like dd/mm/yyyy.

You Lex program should contain least possible user-written C code.

Create example text documents and show that it is working. One can assume that these dates are people's date of birth or date of joining etc so 16 in yy means 2016 (not 1916) and 85 means 1985 (not 2085).

Submission Details

For Problem 1, type your answer and bring a hard printout (with your name and roll number). For problem 2 bring the program and other needed documents in your laptop (you need to give a demo).

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