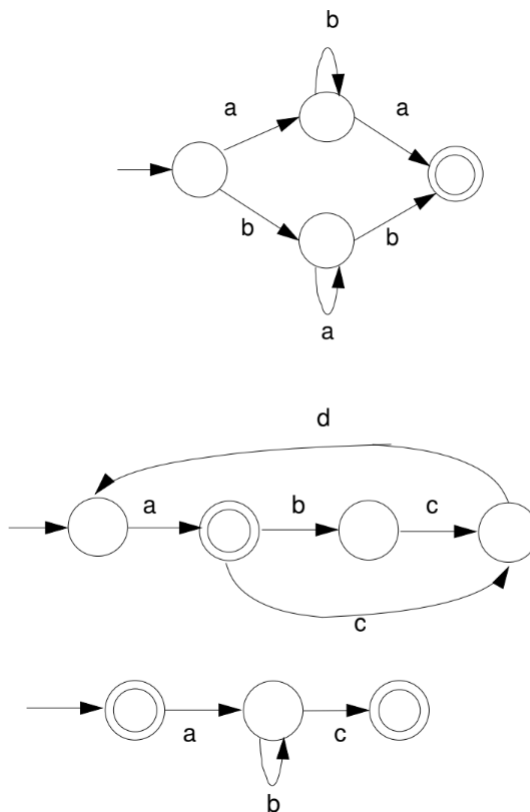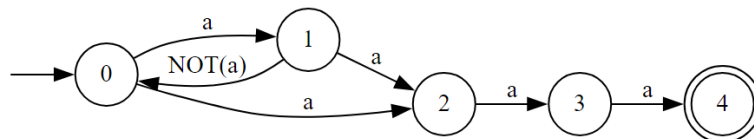**CMPT432 - Design of Compilers**
Lab 2

1. [***Crafting a Compiler* - Exercise 3.3**] Write regular expressions that define the strings recognized by the FAs in Figure 3.33

    (a) (a(b*)a) | (b(b*)b)

    (b) (a(bcd | cd)*)+

    (c) ϵ | a(b*)c
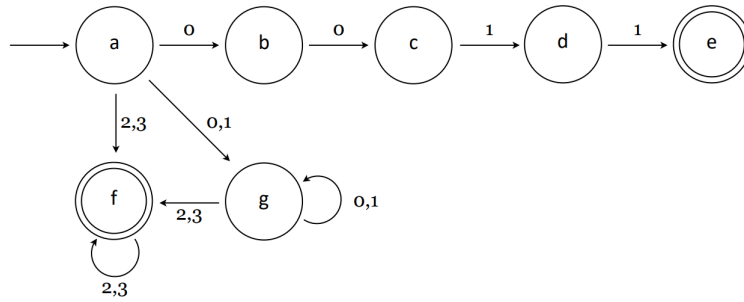

2. [***Crafting a Compiler* - Exercise 3.4**] Write FAs that recognize the tokens defined by the following regular expressions:
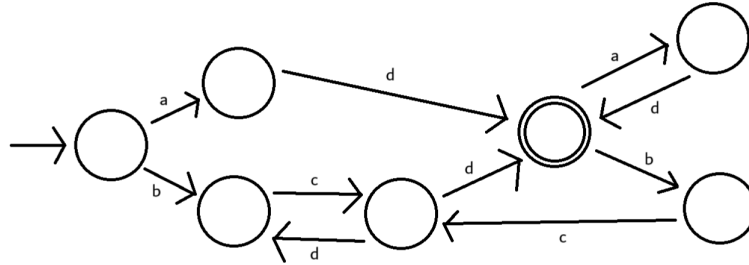
    (a) (a | (bc)*d)+

(b) ((0 | 1)*(2 | 3)+) | 0011

(c) (a NOT(a))*aaa

3. [***"Dragon" Textbook* - Exercise 3.3.4**] Most languages are case-sensitive, so keywords can be written only one way, and the regular expressions describing their lexemes are very simple. However, some languages, like SQL, are case insensitive, so a keyword can be written either in lowercase or in uppercase, or in any mixture of cases. Thus, the SQL keyword SELECT can also be written select, Select, or sElEcT, for instance. Show how to write a regular expression for a keyword in a case-insensitive language. Illustrate the idea by writing the expression for "select" in SQL.

A regex for the case-insensitive keyword would look like the following:

(s|S)(e|E)(l|L)(e|E)(c|C)(t|T)