CS3512: Exercise 01

1. Transform the regular grammar shown below to an FSA (transition diagram). Formally specify the FSA.
   Transform the same grammar as in Part 1 to a regular expression.

   Regular Grammar:

   A -> aB
   -> C
   B -> A
   C -> bD
   -> cD
   ->
   D -> C

2. Consider the following regular expression: (a+b*)*(c+d)*

a) Transform this regular expression to an NFA, from there to a right-linear regular grammar, and from there back to the original regular expression.
b) Transform the NFA from part1, to a DFA.
c) Minimize the DFA obtained in Part 2.
d) Write (in pseudo-code) a lexical analyzer for the language given by the above regular expression. Write two versions of the lexical analyzer:
   - Table-driven
   - Hard-coded.