**CPSC 323 Project Assignment 1**

Due dates: Softcopy 10/02 (Tuesday) in class by 4.0 pm

Hardcopy 10/02 (Tuesday) on TITANium by 11:55 pm.

The first assignment is to write a lexical analyzer (lexer).

**You can build your entire lexer using a FSM**, **Or** **build using at least FSMs for identifier, integer and real (the rest can be written ad-hoc) but *YOU HAVE TO CONSTRUCT A FSM for this assignment otherwise, there will be a deduction of 2 points!***

**Note: In your documentation (design section), YOU MUST write the REs for Identifiers, Real and Integer, and also show the NFSM.**

# The Lexer

A major component of your assignment will be to write a procedure (Function) – lexer (), that returns a token when it is needed. Your lexer() should return a record, one field for the token and another field the actual "value" of the token (lexeme), i.e. the instance of a token.

**Your main program should test the lexer i.e., your program should read a file containing the source code of Rat18S to generate tokens and write out the results to an output file.**

Make sure that you print both, the tokens and lexemes.

*Basically, your main program should work as follows*

while not finished (i.e. not end of the source file) do

call the lexer for a token

print the token and lexeme

endwhile

**Do at least 3 test cases and make sure that you turn in proper documentation using the documentation template.**

**A simple test case**

**Source code:**

while (fahr < upper) a = 23.00

**Output:**

**token**  **lexeme**

keyword while

separator (

identifier fahr

operator <

identifier upper

separator )

identifier a

operator =

real 23.00