Compiler Construction

BPDC

(Lab - 02)

1 Understanding the *LEX*ical Analyser Generator

You are given five lex programs herewith (*.l files). You are supposed to create 5 different folders, one per program and compile each of those as follows.

1. **Run** the command *lex program.l* //This compiles the file *program.l* and creates an equivalent C program *lex.yy.c*. Further, compile the so created C program as follows.
2. **Run** the command *cc -lfl lex.yy.c -o outfile* //This creates the *executable* file *outfile*.

The objective is to learn lex programming by understanding how the given programs respond to various input and analysing their behaviour. You are expected to refer to the **given tutorial** in tandem.

1. *program1.l* just distinguishes tokens *numbers, arithmetic operators, newline character etc.* and prints some corresponding message, depending on the action (*segment of code written in C*) written *against* each of those corresponding regular expressions. *We feed-in the input from command line. As soon as we are done with our input, press* ***Ctrl+d*** *to exit data entry mode.*
2. *program2.l* counts the number of words, lines and characters in the given input. Run *program2.l* in the same way as program1. Modify *program2.l* so that it counts only those words which are of length at least 6.
3. Run *program3.l* in the same way as above. Modify the program so as to make it recognize whether the given input is a power of two, in binary, or not.
4. For *program4.l*, copy your favorite C program "input.c" to your folder which would be the input to your lex program.
5. For *program5.l*, use the same input file "input.c". Check your output in the file "out.c".

Note that the last two programs don't take input from terminal but an input file.

2 Explain yourself

Write a lex program that would take a BITS student's roll number as input and details the student based on that. *You are expected to write regular expressions that would synthesize information like, year of joining, specialization, PS/Thesis, Registration index, Campus (..U) etc. from the given roll number. If the given input does not abide by the Roll number format, print some error message.*