**PSG COLLEGE OF TECHNOLOGY, COIMBATORE**

**Department of Applied Mathematics and Computational Sciences**

**20XT68 – Compiler Design Laboratory**

**Problem Sheet – XI – Exercises**

1. Write a lex program to add line numbers to the given file and display the same in the   
   output.
2. Write a lex program to extract only comment lines from a C program and display the   
   same on output.
3. Write a lex program to replace sequence of blank spaces with a single blank space.
4. Write a lex program to count the occurrence of a word “printf” in a C program.
5. Write a lex program to remove all the occurrences of “printf” from a C program.
6. Write a lex program to extract all html tags in the given file.
7. Write a lex program to remove all html tags in the given file.
8. Write a lex program to check whether the given E-mail id is correct or not.
9. Write a lex program to check whether the given IP address is valid or not. Display the class to which it belongs.

IP ADDRESS: It is a 32 bit address often written in 4 groups of 3 decimals each i.e. 192.168.1.2 (An example of class C IP address)

1. Write a lex program to check whether the given MAC address is valid or not. Also extract the manufacturer of the device.

MAC address is assigned to each network interface when it is manufactured.  It is a 12 digit hexadecimal number.  The 6 leftmost digits are a prefix that identifies the manufacturer of the device. An example of a MAC address: DE-56-0A-DC-E6-88.

1. Write a lex program to count the number of integers and the number of floating point numbers in an input file.
2. Write Lex grammar rules to recognize numbers as defined in C: For example, 1234, 1234L, 1234U, 1234UL, 123.4, 1234E-1, 12.34E+1, 123F, 123.4L, 12E+2F, 12E-2L, 0X1ABC, 0X1ABCU, 0X1ABCL, 0X1ABCUL (any of the alphabetic characters can be lower case as well)
3. Write a lex program to recognize identifiers and keywords for C.
4. Write a lex program to recognize various comments:

a) starting with "#"

b) Enclosed in "#" and #

c) enclosed in "/\*" and "\*/" (nested comments)

d) starting with "//"

1. Write a lex program to read an input program and display the list of strings enclosed in double quotes and characters given in single quotes.
2. Write a lex program to replace every letter with the letter which comes three positions after it in alphabetical order, wrapping around at Z.
3. Write a lex program to find the smallest and longest words from the given text.