**Course - System Programming and Compiler Construction (SPCC)**

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| **Class and Batch** | TE Computer Engineering Class B – Batch C |
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| **Lab #** | 1 |
| **Aim** | Design a Lexical analyzer for different programming languages and implement using lex tool |
| **Objective** |  |
| **Theory** |  |
| **Implementation / Code** | **tokenise.lex:**  %{  #include <stdio.h>  #include <string.h>  int keywordCount = 0;  int stringCount = 0;  int constantCount = 0;  int identifierCount = 0;  int specialSymbolCount = 0;  int operatorCount = 0;  int unrecognizedCount = 0;  %}  %%  "auto"|"break"|"default"|"const"|"void"|"union"|"extern"|"if"|"else"|"while"|"do"|"break"|"continue"|"int"|"double"|"float"|"return"|"char"|"case"|"sizeof"|"long"|"short"|"typedef"|"switch"|"unsigned"|"void"|"static"|"struct"|"goto" { printf("KEYWORD: %s\n", yytext); keywordCount++; }  \"[^\n\"]\*\" { printf("STRING: %s\n", yytext); stringCount++; }  [0-9]+ { printf("CONSTANT: %s\n", yytext); constantCount++; }  [a-zA-Z\_][a-zA-Z0-9\_]\* { printf("IDENTIFIER: %s\n", yytext); identifierCount++; }  [ \t\n] /\* Ignore whitespace \*/  [{}()[\],;.] { printf("SPECIAL SYMBOL: %s\n", yytext); specialSymbolCount++; }  [-+\*/%=&|^<>!~] { printf("OPERATOR: %s\n", yytext); operatorCount++; }  [@.] { printf("UNRECOGNIZED: %s\n", yytext); unrecognizedCount++; }  %%  int yywrap(void) {}  int main() {  yylex();  printf("Keyword count: %d\n", keywordCount);  printf("String constant count: %d\n", stringCount);  printf("Constant count: %d\n", constantCount);  printf("Identifier count: %d\n", identifierCount);  printf("Special symbol count: %d\n", specialSymbolCount);  printf("Operator count: %d\n", operatorCount);  printf("Unrecognized count: %d\n", unrecognizedCount);  return 0;  } |
| **Output** |  |
| **Conclusion** | In this experiment, we learned what is a Lexical Analyzer and what is Lex, how to install it and write a program in Lex to make a lexical analyzer for C programming language, and how to run the lex code on Ubuntu. |
| **References** |  |