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Lab-2

1.AIM: To implement Lexical Analyzer Using Lex Tool.

CODE:

Scanner.l

```
%{
#include <stdio.h>
int COMMENT = 0;
%}

identifier [a-zA-Z_][a-zA-Z0-9_]*

%%
#.*          { printf("\n%s is a preprocessor directive", yytext); }

/*"          { COMMENT = 1; printf("\n%s is a COMMENT", yytext); }
*/"          { COMMENT = 0; printf("\n%s is a COMMENT", yytext); }

"int" |
"float" |
"char" |
"double" |
"while" |
"for" |
"struct" |
"typedef" |
"do" |
"if" |
"break" ||
"continue" |
"void" |
"switch" |
"return" |
"else" |
"goto"      { if (!COMMENT) printf("\n%s is a keyword", yytext); }

{identifier} \( { if (!COMMENT) printf("\nFUNCTION\n\t%s", yytext); }

\{          { if (!COMMENT) printf("\nBLOCK BEGINS"); }
\}          { if (!COMMENT) printf("\nBLOCK ENDS"); }

{identifier} (\\[[0-9]*\\])? { if (!COMMENT) printf("\n%s is an IDENTIFIER", yytext); }

\"([^\\"\\\\]|\\\\\\\\)*\" { if (!COMMENT) printf("\n%s is a STRING", yytext); }

[0-9]+      { if (!COMMENT) printf("\n%s is a NUMBER", yytext); }

=          { if (!COMMENT) printf("\n%s is an ASSIGNMENT OPERATOR", yytext); }

"<=" |
">=" |
```

```

"<=" |
">=" |
"<" |
">" |
"==" |
                                { if (!COMMENT) printf("\n%s is a RELATIONAL OPERATOR", yytext); }
\{
\}                                { if (!COMMENT) ECHO; }
                                { if (!COMMENT) ECHO; }
[ \t\n]+                          { /* skip whitespace */ }
.                                  { if (!COMMENT) printf("\nUnrecognized character: %s", yytext); }
%%

int main(int argc, char **argv)
{
    FILE *file;
    file = fopen("var.c", "r");
    if (!file) {
        printf("Could not open the file\n");
        return 1;
    }
    yyin = file;
    yylex();
    fclose(file);
    return 0;
}

int yywrap()
{
    return 1;
}

```

Output:

```

asecomputerlab@asecomputerlab-hp-prodesk-400-g7-micrtower-pc:~/Desktop/22076-lab$ nano scanner.l
asecomputerlab@asecomputerlab-hp-prodesk-400-g7-micrtower-pc:~/Desktop/22076-lab$ nano var.c
asecomputerlab@asecomputerlab-hp-prodesk-400-g7-micrtower-pc:~/Desktop/22076-lab$ flex scanner.l
asecomputerlab@asecomputerlab-hp-prodesk-400-g7-micrtower-pc:~/Desktop/22076-lab$ gcc lex.yy.c -o scanner
asecomputerlab@asecomputerlab-hp-prodesk-400-g7-micrtower-pc:~/Desktop/22076-lab$ ./scanner

#include<stdio.h> is a preprocessor directive
#include<conio.h> is a preprocessor directive
void is a keyword
FUNCTION
    main()
BLOCK BEGINS
int is a keyword
a is an IDENTIFIER
Unrecognized character: ,
b is an IDENTIFIER
Unrecognized character: ,
c is an IDENTIFIER
Unrecognized character: ;
a is an IDENTIFIER
= is an ASSIGNMENT OPERATOR
1 is a NUMBER
Unrecognized character: ;
b is an IDENTIFIER
= is an ASSIGNMENT OPERATOR
2 is a NUMBER
Unrecognized character: ;
c is an IDENTIFIER
= is an ASSIGNMENT OPERATOR
a is an IDENTIFIER
Unrecognized character: +
b is an IDENTIFIER
Unrecognized character: ;
FUNCTION
    printf(
"Sum: %d" is a STRING
Unrecognized character: ,
c is an IDENTIFIER)
Unrecognized character: ;
BLOCK ENDSasecomputerlab@asecomputerlab-hp-prodesk-400-g7-micrtower-pc:~/Desktop/22076-lab$ █

```