Assignment no – A3

Roll no – 4461

CODE:

%{

#include <stdio.h>

#include <string.h>

int lno=1;

FILE\* opfile;

char name[20][20];

int cnt=0;

int elno[20];

char edesc[20][100];

int ecnt=0;

%}

%%

[0-9]+ {printf("%d %s NUMBER\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

[-+\*/] {printf("%d %s OPERATOR\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

= {printf("%d %s ASSIGNMENT\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

include|main|return {printf("%d %s KEYWORD\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

int|float|char|double {printf("%d %s DATATYPE\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

[\t ] ;

\n {lno++; fprintf(opfile,"\n");}

(\/\/.\*) ;

(\/\\*[^\*/]\*\\*\/) ;

(\/\\*[^\*/]\*) {elno[ecnt]=lno; char str[100]="Unterminated comment ";strcat(str,yytext); strcpy(edesc[ecnt],str);ecnt++;}

# {printf("%d %s PREPROCESSOR\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

; {printf("%d %s TERMINATOR\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

\< {printf("%d %s LESS THAN\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

\> {printf("%d %s GREATER THAN\n",lno,yytext); fprintf(opfile,"%s ",yytext);}

\{ {printf("%d %s START OF BLOCK\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

\} {printf("%d %s END OF BLOCK\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

\( {printf("%d %s OPEN\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

\) {printf("%d %s CLOSE\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

\[ {printf("%d %s OPEN\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

\] {printf("%d %s CLOSE\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

, {printf("%d %s SEPARATOR\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

printf|scanf {printf("%d %s LIBRARY FUNCTION\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

(\"[^\"]\*\") {printf("%d %s STRING CONSTANT\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

(\"[^\"\n]\*\n) {elno[ecnt]=lno; char str[100]="Unterminated quotes ";strcat(str,yytext); strcpy(edesc[ecnt],str); ecnt++; lno++;}

([a-zA-Z0-9]+\.h) {printf("%d %s HEADER FILE\n",lno,yytext);fprintf(opfile,"%s ",yytext);}

[a-zA-Z][a-zA-Z0-9]\* {printf("%d %s IDENTIFIER\n",lno,yytext);fprintf(opfile,"%s ",yytext);

st\_add(yytext);}

[0-9]+[a-zA-Z]+ {elno[ecnt]=lno; char str[100]="Unrecognized token ";strcat(str,yytext); strcpy(edesc[ecnt],str); ecnt++; }

[a-zA-Z][a-zA-Z0-9]\*[\?@$][a-zA-Z0-9]\* {elno[ecnt]=lno; char str[100]="Unrecognized token ";strcat(str,yytext); strcpy(edesc[ecnt],str); ecnt++; }

%%

void st\_add(char s[20])

{

int i;

for(i=0;i<cnt;i++)

{if(strcmp(name[i],s)==0) return;}

strcpy(name[cnt],s);

cnt++;

}

main()

{

char ifile[100],ofile[100];

printf("\nEnter input file name: ");

scanf("%s",ifile);

yyin=fopen(ifile,"r");

printf("\nEnter output file name: ");

scanf("%s",ofile);

opfile=fopen(ofile,"w");

int i;

printf("Line No LEXEME Token\n");

yylex();

printf("\nSymbol Table\n");

for(i=0;i<cnt;i++)

{printf("\n %s ",name[i]);

}

printf("\nLexical Errors: Found %d\n",ecnt);

for(i=0;i<ecnt;i++)

{printf("\nLine no. %2d \t %s",elno[i],edesc[i]);}

return 0;

}

int yywrap()

{

return 1;

}

OUTPUT:

abhishek@Lenovo:~/workspace$ lex a3.l

abhishek@Lenovo:~/workspace$ gcc -o a3 lex.yy.c

a3.l:49:6: warning: conflicting types for ‘st\_add’

void st\_add(char s[20])

^

a3.l:44:1: note: previous implicit declaration of ‘st\_add’ was here

st\_add(yytext);}

^

abhishek@Lenovo:~/workspace$ ./a3

Enter input file name: abc.c

Enter output file name: output.txt

Line No LEXEME Token

1 # PREPROCESSOR

1 include KEYWORD

1 < LESS THAN

1 stdio.h HEADER FILE

1 > GREATER THAN

2 # PREPROCESSOR

2 include KEYWORD

2 < LESS THAN

2 iostream.h HEADER FILE

2 > GREATER THAN

3 # PREPROCESSOR

3 include KEYWORD

3 < LESS THAN

3 math.h HEADER FILE

3 > GREATER THAN

4 main KEYWORD

4 ( OPEN

4 ) CLOSE

5 { START OF BLOCK

6 int DATATYPE

6 a IDENTIFIER

6 , SEPARATOR

6 b IDENTIFIER

6 , SEPARATOR

6 c IDENTIFIER

6 ; TERMINATOR

7 printf LIBRARY FUNCTION

7 ( OPEN

7 "Hello" STRING CONSTANT

7 ) CLOSE

7 ; TERMINATOR

8 int DATATYPE

8 d IDENTIFIER

8 , SEPARATOR

8 e IDENTIFIER

8 ; TERMINATOR

9 printf LIBRARY FUNCTION

9 ( OPEN

9 "HI" STRING CONSTANT

9 ) CLOSE

9 ; TERMINATOR

10 scanf LIBRARY FUNCTION

10 ( OPEN

10 "Enter" STRING CONSTANT

10 ) CLOSE

10 ; TERMINATOR

11 a IDENTIFIER

11 = ASSIGNMENT

11 b IDENTIFIER

11 + OPERATOR

11 20 NUMBER

11 ; TERMINATOR

12 if IDENTIFIER

12 ( OPEN

12 ) CLOSE

13 { START OF BLOCK

14 c IDENTIFIER

14 = ASSIGNMENT

14 d IDENTIFIER

14 ; TERMINATOR

15 char DATATYPE

15 x IDENTIFIER

15 , SEPARATOR

15 y IDENTIFIER

15 ; TERMINATOR

16 } END OF BLOCK

17 } END OF BLOCK

Symbol Table

a

b

c

d

e

if

x

y

Lexical Errors: Found 0

abhishek@Lenovo:~/workspace/OUTPUT#

# include < stdio.h >

# include < iostream.h >

# include < math.h >

main ( )

{

int a , b , c ;

printf ( "Hello" ) ;

int d , e ;

printf ( "HI" ) ;

scanf ( "Enter" ) ;

a = b + 20 ;

if ( )

{

c = d ;

char x , y ;

}

}