Compiler Design

Exp–1 Lexical Analyzer

Name:- K. DUSHYANT REDDY Reg No.:- RA1911033010029

Branch:- CSE-SE

CODE:

#include <bits/stdc++.h> using namespace std;

int isKeyword(char buffer[]){ char keywords[32][10] ={

"auto","break","case","char","const","continue","default",

"do","double","else","enum","extern","float","for","goto",

"if","int","long","register","return","short","signed",

"sizeof","static","struct","switch","typedef","union",

"unsigned","void","volatile","while"};

int i, flag = 0;

for(i = 0; i < 32; ++i){ if(strcmp(keywords[i], buffer) == 0){

flag = 1; break;}

}

return flag;

}

int main(){

char ch, buffer[15],b[30], logical\_op[] = "><",math\_op[]="+-

\*/=",numer[]=".0123456789",other[]=",;\(){}[]'':";

ifstream fin("l.txt");

int mark[1000]={0};

int i,j=0,kc=0,ic=0,lc=0,mc=0,nc=0,oc=0,aaa=0;

vector < string > k; vector<char >id; vector<char>lo; vector<char>ma; vector<string>nu; vector<char>ot;

if(!fin.is\_open()){

cout<<"error while opening the file\n"; exit(0);

}

while(!fin.eof()){ ch = fin.get();

for(i = 0; i < 12; ++i){ if(ch == other[i]){

int aa=ch; if(mark[aa]!=1){

ot.push\_back(ch); mark[aa]=1;

++oc;}

}

}

for(i = 0; i < 5; ++i){

if(ch == math\_op[i]){ int aa=ch;

if(mark[aa]!=1){ ma.push\_back(ch); mark[aa]=1;

++mc;}

}

}

for(i = 0; i < 2; ++i){

if(ch == logical\_op[i]){ int aa=ch;

if(mark[aa]!=1){ lo.push\_back(ch); mark[aa]=1;

++lc;

}

}

}

if(ch=='0' || ch=='1' || ch=='2' || ch=='3' || ch=='4' || ch=='5' || ch=='6' || ch=='7'

|| ch=='8' || ch=='9' || ch=='.' ||ch == ' ' || ch == '\n' || ch == ';'){

if(ch=='0' || ch=='1' || ch=='2' || ch=='3' || ch=='4' || ch=='5' || ch=='6' || ch=='7'

|| ch=='8' || ch=='9' || ch=='.')b[aaa++]=ch;

if((ch == ' ' || ch == '\n' || ch == ';') && (aaa != 0)){ b[aaa] = '\0';

aaa = 0; char arr[30];

strcpy(arr,b); nu.push\_back(arr);

++nc;}

}

if(isalnum(ch)){ buffer[j++] = ch;}

else if((ch == ' ' || ch == '\n') && (j != 0)){ buffer[j] = '\0';

j = 0;

if(isKeyword(buffer) == 1){

k.push\_back(buffer);

++kc;

}

else{

if(buffer[0]>=97 && buffer[0]<=122) { if(mark[buffer[0]-'a']!=1){ id.push\_back(buffer[0]);

++ic;

mark[buffer[0]-'a']=1;}

} }

}

}

fin.close(); printf("Keywords: "); for(int f=0;f<kc;++f){

if(f==kc-1){ cout<<k[f]<<"\n";}

else {

cout<<k[f]<<", ";

}

}

printf("Identifiers: "); for(int f=0;f<ic;++f){

if(f==ic-1){

cout<<id[f]<<"\n";} else {

cout<<id[f]<<", ";

}

}

printf("Special Characters: "); for(int f=0;f<mc;++f){

if(f==mc-1){ cout<<ma[f]<<"\n";}

else {

cout<<ma[f]<<", ";

}

}

printf("Logical Operators: "); for(int f=0;f<lc;++f){

if(f==lc-1){ cout<<lo[f]<<"\n";}

else {

cout<<lo[f]<<", ";

}

}

printf("Numerical: "); for(int f=0;f<nc;++f){ if(f==nc-1){

cout<<nu[f]<<"\n";}

else {

cout<<nu[f]<<", ";

}

}

printf("Punctuation: "); for(int f=0;f<oc;++f){

if(f==oc-1){ cout<<ot[f]<<"\n";}

else {

cout<<ot[f]<<" ";

}

}

return 0;

}

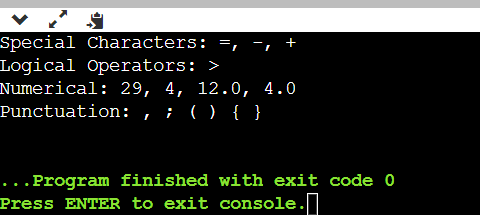
TXT FILE (l.txt):

int a,b,c; float d,e; a=b=29; c=4;

if(a>b){ c=a-b; e=d-12.0;

}else{ d=e+4.0;

b=a+c;

} OUTPUT: