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///Assignment 4

#include<bits/stdc++.h>

#include<ctype.h>

#include <string.h>

using namespace std;

int isKey(char lex[20]){

char a[100][100]= {"int","float","void","char","long","if","else","double"};

for(int i=0; i<8; i++){

if(strcmp(lex,a[i])==0){

return 1;

}

}

return 0;

}

int main(void){

FILE \*p1,\*p2,\*p3;

char c,d;

p1 = fopen("input.txt","r");

p2 = fopen("1output.txt","w");

int flagForNewIden = 0;

int line = 1;

int bracketCounterStart = 0, bracketCounterEnd = 0;

if(!p1) printf("\nFile can't be opened!");

else

{

while((c = fgetc(p1)) != EOF)

{

if(c=='\n')

line++;

if(c=='{')

bracketCounterStart++;

if(c=='}'){

bracketCounterEnd++;

if(bracketCounterStart < bracketCounterEnd)

cout <<"Misplaced '}' at line " << line << endl;

}

}

}

fclose(p1);

fclose(p2);

p1 = fopen("input.txt","r");

p2 = fopen("1output.txt","w");

int semiBalance = 0;

char chk[100],chk2[100];

int j=0;

int ln=1;

while((c=fgetc(p1))!=EOF)

{

chk[j]=c;

j++;

if(c=='\n')

{ln++;

chk[--j]=NULL;

if(strcmp(chk,chk2)==0)

printf("Duplicate token at line %d\n",ln);

strcpy (chk2,chk);

j=0;

}

if(c==' ')

{

chk[--j]=NULL;

if(strcmp(chk,chk2)==0 )

printf("Duplicate token %s at line %d\n",chk,ln);

if(isKey(chk) && isKey(chk2) )

printf("Duplicate token %s at line %d\n",chk,ln);

strcpy (chk2,chk);

j=0;

}

}

fclose(p1);

fclose(p2);

p1 = fopen("input.txt","r");

p2 = fopen("output.txt","w");

j=0;

ln=1;

int ifBalance=0;

while((c=fgetc(p1))!=EOF)

{

chk[j]=c;

j++;

if(c=='\n')

{ln++;

}

if(c==' ')

{

chk[--j]=NULL;

if(strcmp(chk,"if")==0) ifBalance=1;

else if(strcmp(chk,"else")==0) ifBalance--;

if(ifBalance<0){

printf("Unmatched %s at line %d\n",chk,ln);

ifBalance=0;

}

strcpy (chk2,chk);

j=0;

}

}

fclose(p1);

fclose(p2);

///If else balance checker :

p1 = fopen("input.txt","r");

p2 = fopen("output.txt","w");

ln=1;

int ifBalance1 = 0;

while((c=fgetc(p1))!=EOF)

{

chk[j]=c;

if(c=='\n')

ln++;

j++;

if(c==' ')

{

chk[--j]=NULL;

if(strcmp(chk,"if")==0)

{

ifBalance1=1;

}

else if(strcmp(chk,"else")==0)

{

ifBalance1--;

}

//else if(strcmp(chk, isKey())==0) ifBalance1--;

if(ifBalance <0)

{

printf("Extra ELSE detected at line %d\n",ln);

ifBalance1=0;

}

strcpy (chk2,chk);

j=0;

}

}

fclose(p1);

fclose(p2);

return 0;

}