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//LEXICAL ANALYZER

#include<string.h>
#include<ctype.h>
#include<stdio.h>

int k_count=0,i_count=0;
void keyword(char str[10])
{
        if(strcmp("for",str)==0||strcmp("printf",str)==0||
        strcmp("while",str)==0||strcmp("do",str)==0||
        strcmp("int",str)==0||strcmp("float",str)==0||
        strcmp("char",str)==0||strcmp("double",str)==0||
        strcmp("static",str)==0||strcmp("switch",str)==0||
        strcmp("case",str)==0||strcmp("include",str)==0)
        {
                printf("\n%s is a keyword\n",str);
                k_count++;
        }
        else
        {
                printf("\n%s is an identifier\n",str);
                i_count++;
        }
}

void main()
{
        FILE *f1,*f2,*f3;
        char c,str[10],str1[10];
        int num[100],lineno=0,tokenvalue=0,i=0,j=0,k=0,count=0,s_count=0;

        /* printf("Enter the C program: ");
          f1 = fopen("input.txt","w");
          while((c=getchar())!=EOF)
                putc(c,f1);
          fclose(f1); */

        f1 = fopen("input.txt","r");
        f2 = fopen("identifier","w");
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f3 = fopen("special char","w");

while((c = getc(f1))!=EOF)
{
        if(isdigit(c))
        {
                tokenvalue =    c-'0';
                c=getc(f1);
                while(isdigit(c))
                {
                        tokenvalue*=10+c-'0';
                        c=getc(f1);
                }
                num[i++] = tokenvalue;
                ungetc(c,f1);
                count = i;
        }
        else if(isalpha(c))
        {
                putc(c,f2);
                c=getc(f1);
                while(isdigit(c)||isalpha(c)||c=='_'||c=='$')
                {
                        putc(c,f2);
                        c = getc(f1);
                }
                putc(' ',f2);
                ungetc(c,f1);
        }
        else if(c==' '||c=='\t')
                printf(" ");
        else if(c=='\n')
                lineno++;
        else
                putc(c,f3);
}
fclose(f2);
fclose(f3);
fclose(f1);
printf("\nThe no's in the program are: ");
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for(i=0;i<count;i++)
        printf(" %d\t",num[i]);
for(j=0;j<1;j++)
{
        printf("\n");
        f2 = fopen("identifier","r");
        k=0;
        printf("\nThe keywords & identifiers are: ");
        while((c=getc(f2))!=EOF)
        {
                if(c!=' ')
                        str[k++]=c;
                else
                {
                        str[k] = '\0';
                        keyword(str);
                        k=0;
                }
        }
        fclose(f2);
        f3 = fopen("special char","r");
        printf("\nThe special characters are: ");
        while((c=getc(f3))!=EOF)
{
                printf("%c",c);
        s_count++;
}
        printf("\n");
        fclose(f3);
        printf("\nTotal no: of lines are: %d\n",lineno);
        printf("\nCount of numbers are: %d\n",count);
        printf("\nTotal no: of keywords are: %d\n",k_count);
        printf("\nTotal no: of identifiers are: %d\n",i_count);
        printf("\nTotal no: of special characters are: %d\n",s_count);
}
```