**17)Write a C program for implementing a Lexical Analyzer to Scan and Count the number of characters, words, and lines in a file.**

#include <stdio.h>

#include <stdlib.h>

#include <ctype.h>

void countElements(FILE \*file, int \*lines, int \*words, int \*characters) {

char ch;

int inWord = 0;

while ((ch = fgetc(file)) != EOF) {

(\*characters)++;

if (ch == '\n') {

(\*lines)++;

}

if (isspace(ch)) {

if (inWord) {

inWord = 0;

(\*words)++;

}

} else {

inWord = 1;

}

}

if (inWord) {

(\*words)++;

}

}

int main(int argc, char \*argv[]) {

if (argc != 2) {

printf("Usage: %s <filename>\n", argv[0]);

return 1;

}

FILE \*file = fopen(argv[1], "r");

if (file == NULL) {

perror("Error opening file");

return 1;

}

int lines = 0, words = 0, characters = 0;

countElements(file, &lines, &words, &characters);

fclose(file);

printf("Lines: %d\n", lines);

printf("Words: %d\n", words);

printf("Characters: %d\n", characters);

return 0;

}

