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 analyzeFile(const char \*filename) {

FILE \*file = fopen(filename, "r");

if (file == NULL) {

printf("Error: Could not open file %s\n", filename);

return;

}

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

char ch;

int inWord = 0;

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

characters++;

if (ch == '\n') {

lines++;

}

if (isspace(ch)) {

inWord = 0;

} else if (!inWord) {

inWord = 1;

words++;

}

}

fclose(file);

printf("File Analysis:\n");

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

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

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

}

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

if (argc != 2) {

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

return 1;

}

analyzeFile(argv[1]);

return 0;

}

