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

**Code:**

#include <stdio.h>

#include <stdlib.h>

#include <ctype.h>

void analyzeFile(const char \*filename) {

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

    if (file == NULL) {

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

        return;

    }

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

    char ch, prev = '\0';

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

        characters++;

        if (ch == '\n') {

            lines++;

        }

        if (isspace(ch) && !isspace(prev)) {

            words++;

        }

        prev = ch;

    }

    if (!isspace(prev)) {

        words++; // Counting last word if file doesn't end with space

    }

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

    printf("Words: %d\n", words);

    printf("Lines: %d\n", lines);

    fclose(file);

}

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

    if (argc != 2) {

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

        return 1;

    }

    analyzeFile(argv[1]);

    return 0;

}

**OUTPUT:**

