Assignment No. 7A

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#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <fcntl.h>
#include <sys/stat.h>
#include <string.h>

#define FIFO1 "fifo1"
#define FIFO2 "fifo2"
#define FILE_NAME "output.txt"
#define BUFFER_SIZE 1024

// Function to count lines, words, and characters
void count_lwc(const char *text, int *lines, int *words, int *chars) {
    *lines = *words = *chars = 0;
    int in_word = 0;
    for (int i = 0; text[i] != '\0'; i++) {
        (*chars)++;
        if (text[i] == '\n') (*lines)++;
        if (text[i] == ' ' || text[i] == '\n' || text[i] == '\t') {
            in_word = 0;
        } else if (!in_word) {
            in_word = 1;
            (*words)++;
        }
    }
}

int main() {
    // Create FIFOs
    mkfifo(FIFO1, 0666);
    mkfifo(FIFO2, 0666);

    pid_t pid = fork();

    if (pid < 0) {
        perror("Fork failed");
        exit(1);
    }

    if (pid > 0) {
        // Parent process (Process 1)
        char buffer[BUFFER_SIZE];
```

```
    int fd1 = open(FIFO1, O_WRONLY);
    int fd2 = open(FIFO2, O_RDONLY);

    printf("Enter sentences (type 'exit' to quit):\n");
    while (1) {
        printf("Input: ");
        fgets(buffer, BUFFER_SIZE, stdin);
        if (strncmp(buffer, "exit", 4) == 0) break;

        write(fd1, buffer, strlen(buffer)+1);  // Send to Process 2
        read(fd2, buffer, BUFFER_SIZE);        // Read result from Process 2
        printf("Output from Process 2:\n%s\n", buffer);
    }

    close(fd1);
    close(fd2);
    unlink(FIFO1);
    unlink(FIFO2);

} else {
    // Child process (Process 2)
    char buffer[BUFFER_SIZE];

    int fd1 = open(FIFO1, O_RDONLY);
    int fd2 = open(FIFO2, O_WRONLY);

    while (1) {
        int n = read(fd1, buffer, BUFFER_SIZE);
        if (n <= 0) break;

        int lines, words, chars;
        count_lwc(buffer, &lines, &words, &chars);

        // Write results to file
        FILE *fp = fopen(FILE_NAME, "w");
        fprintf(fp, "Lines: %d\nWords: %d\nCharacters: %d\n", lines, words, chars);
        fclose(fp);

        // Send file contents back to Process 1
        fp = fopen(FILE_NAME, "r");
        fread(buffer, 1, BUFFER_SIZE, fp);
        fclose(fp);

        write(fd2, buffer, strlen(buffer)+1);
    }

    close(fd1);
```

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        close(fd2);
        exit(0);
    }

    return 0;
}
```

Output :

```
Enter sentences (type 'exit' to quit):
Input: Hello world
Output from Process 2:
Lines: 1
Words: 2
Characters: 12

Input: This is ChatGPT
Output from Process 2:
Lines: 1
Words: 3
Characters: 16
```