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1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4 #include <fcntl.h>
5 #include <sys/types.h>
6 #include <sys/stat.h>
7 #include <unistd.h>
8 #define FIFO1 "/tmp/fifo1"
9 #define FIFO2 "/tmp/fifo2"
10 #define BUFFER_SIZE 1024
11 // Function to count characters, words, and lines
12 void count_char_word_line(char *input, int *char_count, int *word_count, int *line_count)
13 {
14     *char_count = *word_count = *line_count = 0;
15     int in_word = 0;
16     for (int i = 0; input[i] != '\0'; i++)
17     {
18         (*char_count)++; // Count characters
19         if (input[i] == '\n')
20             (*line_count)++; // Count lines
21         if (input[i] == ' ' || input[i] == '\n')
22         {
23             in_word = 0;
24         }
25         else if (in_word == 0)
26         {
27             in_word = 1;
28             (*word_count)++; // Count words
29         }
30     }
31 }
32 // Process 1: Sends data, receives result
33 void process1()
34 {
35     char buffer[BUFFER_SIZE];
36     // Open FIFO1 for writing
37     int fd_write = open(FIFO1, O_WRONLY);
38     printf("Enter sentences (Ctrl+D to end):\n");
39     // Read from stdin and send to Process 2
40     while (fgets(buffer, BUFFER_SIZE, stdin) != NULL)
41     {
42         write(fd_write, buffer, strlen(buffer) + 1);
43     }
44     close(fd_write);
45     // Open FIFO2 for reading result from Process 2
46     int fd_read = open(FIFO2, O_RDONLY);
47     while (read(fd_read, buffer, sizeof(buffer)) > 0)
48     {
49         printf("Received: %s\n", buffer);
50     }
51     close(fd_read);
52 }
53 // Process 2: Receives data, processes it, sends result
54 void process2()
55 {
56     char buffer[BUFFER_SIZE];
57     int char_count, word_count, line_count;
58     // Open FIFO1 for reading
59     int fd_read = open(FIFO1, O_RDONLY);

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60 // Read from FIFO1 and process it
61 while (read(fd_read, buffer, sizeof(buffer)) > 0)
62 {
63     count_char_word_line(buffer, &char_count, &word_count, &line_count);
64     sprintf(buffer, "Chars: %d, Words: %d, Lines: %d", char_count, word_count,
65             line_count);
66     // Open FIFO2 for writing result back
67     int fd_write = open(FIFO2, O_WRONLY);
68     write(fd_write, buffer, strlen(buffer) + 1);
69     close(fd_write);
70 }
71 close(fd_read);
72 }
73 int main()
74 {
75     // Create two FIFOs
76     mkfifo(FIFO1, 0666);
77     mkfifo(FIFO2, 0666);
78     int choice;
79     printf("Enter 1 for Process 1, 2 for Process 2: ");
80     scanf("%d", &choice);
81     getchar(); // Consume newline
82     if (choice == 1)
83     {
84         process1();
85     }
86     else if (choice == 2)
87     {
88         process2();
89     }
90     // Clean up FIFOs
91     unlink(FIFO1);
92     unlink(FIFO2);
93     return 0;
94 }

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