COMP 2560 Winter 2024—Assignment 5

Due: 11: 59 PM, Mar. 31
Please properly name all the files to be submitted.

Question 1

The server.c and client.c pair of code that we discuss in class make use of FIFO and can only transit characters from the client side to the server side. Modify the source code so that every time the server side receives information from the client side, the server side send an acknowledgement to the client side to display.

For example, the user at the client side types a letter "a", and the server side displays the letter "a" and then the server side sends the sentence "I received your message" to the client side so that the client side displays "I received your message" in its console.

Question 2

The game.c program we discussed in class uses pipes to coordinate the players. Rewrite the game.c program so that it would now use FIFOs to coordinate the players.

Question 3

Rule #4 for using a pipe says

> If a process writes to a pipe whose read-end has been closed, the write operation fails and the writer process receives a `SIGPIPE`.

Write a small program to simulate this scenario as follows.

1. Create a pipe.
2. Close its read-end.
3. Install a signal handler for the SIGPIPE signal and this signal handler only prints out a message to say "caught the sigpipe single" and it returns. This signal handler does not terminate the process.
4. Write to the pipe some information of your choice using the write(...) function. For example, an integer, a string, etc.
5. Check the return value of the write function and use perror(...) function print out the details of error.

Your code should produce a similar output as the one below:

```
danwu@delta:~/comp2560w2024/labcode$ ./assn5q
 caught the sigpipe signal
write function returns -1
pipe problem.: Broken pipe
danwu@delta:~/comp2560w2024/labcode$
```

Submission Requirements

For all questions, you need **to submit your source code**. Also, use the script command with the timing option to record you compiling and running your program and submit the script file and timing file for each question as well. **Record a short video with time stamps** for each question to explain your code design and compile and run your code. Please properly name all the submitted files.