CS6233

Midterm – Part2

Programming Problem

1 hour, 25 minutes

10 points

Please submit your C-code for the following programming problem via the assignment page at NYU classes before the time expiration.

This problem is **open book, notes, class page, man pages, etc.**

You must **work alone** and may not consult or seek help from others; locally, remotely, via internet forums, etc.

You may perform your work on a Linux virtual machine or a Linux laptop.

You shall checkout with the teaching assistant before exiting the zoom meeting.

Programming problem:

Write the main routine of your program such that it creates **two unnamed pipes** and then spawns a child process using the fork() system call.

The child process starts by first sending a single character 'R' to the parent via one of the two pipes the parent created, indicating that it is ready.

The parent waits till it receives the character 'R' and responds by asking the user to type a message (on the console) and then sends that message to the child process character by character via the second pipe, waiting a random time (0 to 1 second) between sending one character and the next. The parent then waits for the child to exit.

When the child receives the full message, it prints it to the screen and then exits. Note that the child does not know the length of the message, and thus may use the newline character or the null terminator to detect the end of the message string.

After the child exits, the parent closes the pipes and exits.

HINT: The parent may prompt the user to enter a message by using the C standard library function `printf()`. It may also read the message the user entered using the C standard library function `scanf()`.