

**Lab Report**

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| **Course**: | Operating System Principle |
| **Semester**: | 2nd semester of the academic year **2020-2021** |
| **Major**: | Software Engineering |
| **Class**: | 2019 |
| **Student Name**: |  |
| **Student ID:** |  |
| **Teacher:** | ZHAO, Hengjun (赵恒军) |

**School of Computer and Information Science**

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| Name | | Interprocess communication in Linux --- Named Pipe | | | |
| Date | | April, 2021 | Type | | □Confirmatory  √ Design  √ Comprehensive |
| 1. **Objective & Requirements**    1. Understand named pipe inter-process communication (IPC) in Linux    2. Grasp named pipe operations    3. Can use named pipe to write application programs    4. Review multithreaded programming | | | | | |
| 1. **Experimental environment (**platform and software**)**   Ubuntu 16.04 or higher versions | | | | | |
| 1. **Experimental content and design** (Main Content, Procedure, Codes and Results) 2. Task 1 3. Create two processes, called A and B 4. Create a named pipe (using mkfifo function call) , say **f**, that are shared by A and B. 5. A and B communicate through **f** as follows:    * 1. A repeatedly reads inputs from keyboard and then write the information to **f**      2. B repeatedly reads information from **f** and then output it to the screen   (hint: you many use fgets() to read inputs from keyboard)   1. Task 2 2. Create two processes, called A and B 3. Create two named pipes (using mkfifo function call) , say f1 and f2, that are shared by A and B. 4. Let A and B communicate through f1 and f2.    1. Inside A, create two threads, one reads from f1, and the other writes to f2    2. Inside B, create two threads, one writes to f1, and the other reads from f2 5. The threads in A or B for writing will accept an inputted string from the keyboard and then write it to the corresponding fifo 6. The threads in A or B for reading will read the string from the corresponding fifo and print it to the screen 7. When a thread in A reads“88”from or writes“88”to a corresponding fifo, then A quit; the same for process B. 8. Please provide your procedure to perform the tasks and source codes. | | | | | |
| 1. **Result analysis and discussion**（Analysis of experimental results and summing up the harvest and the existing problems） | | | | | |
| Comments & Evaluation | Content & Design (A-E) | | |  | |
| Procedure & Codes (A-E) | | |  | |
| Results (A-E) | | |  | |
| Analysis & Discussion (A-E) | | |  | |
| Score (A-E):  Feedback comments: | | | | |