

Dept. of CSE, IITDM Kancheepuram

COM301P – Operating Systems

September 17, 2021

Lab Assignment – 5

In this lab, you will implement system calls available in process management.

- (1) Write a program using `pipe()` and `fork()` in which parent process takes one string as input. The same is sent to the child using `pipe1` and child will reverse it. After the reversing is complete, the child process will send it (reversed string) to parent process using `pipe2`. Subsequently, parent process will read the string and displays it.
- (2) Write a program using `pipe()` and `fork()` in which parent process takes `string1` as input. The same is provided to the child process using `pipe1`. Now, child process will take `string2` as input and read `string1` from `pipe1`. Then, child will concatenate `string1` with `string2`. After the concatenation is complete, the child process will send it to the parent process using `pipe2`. Subsequently, parent will read the concatenated string and displays it.
- (3) Explore the following system calls.
 - a. `opendir()` and `readdir()`
 - b. `open()` with its ACCESS MODES and `close()`
 - c. `read()` and `write()`

Write one small program to demonstrate each one of them.

- (4) Write two different programs (P1 and P2) in C to demonstrate IPC using shared memory. Process P1 will write 100 bytes of data to the shared memory and P2 will read from the shared memory and displays it. Then, P2 will write 100 bytes of data to the same shared memory and P1 will read and displays it.

Submission Instructions:

- Submit your assignment file in the Google classroom.
- After writing the code for each problem, write your own explanation in plain paper (Own Handwriting). Write your Name and Roll No in each page.
- Attach the screen short of the output after the execution of the program.
- Save all the above things of all the programs in to one file and save as `RollNo_Lab#.pdf` (Example: `EC20B1001_Lab5.pdf`) and upload.
- Make sure the program description(handwritten), program, output screenshot for all questions are included in a **single pdf** as mentioned above.
- Save all the C program files as per the format `RollNo_Lab#_QuestionNo.c` (Example: `EC20B1001_Lab5_Q2.c`) and upload.
- Any form of plagiarism/copying from peer or internet sources will lead penalty.
- NOTE: DO NOT ZIP THE FILES.