Lab Outline

CSE 321: Operating Systems

Semester: Summer 2024

Course Description:

The laboratory exercises will include familiarization with LINUX terminal, C programming, process management and inter-process communication; Experiments on process scheduling and other operating system tasks through simulation/implementation.

Lab Activity Plan:

Lab No	Topic details	Time Allocation	
0	Introductory Session	**Week 1**	**1 June - 6 June**
1	Getting started, Linux Basics and Installing Ubuntu. Familiarizing with the Linux kernel. Working with the Terminal Panel. Learning how one can access and operate on different directories and files through Terminal using Shell Commands.	**Week 2**	**8 June -13 June**
2	C Programming (Part 1): Variables, Data types, Input/Output, Arithmetic Operations, Arrays, Pointers, String, Struct.	**Week 4**	**22 June - 27 June**
3	C Programming (Part 2): Flow Control (If-Else), Loop, Function.	**Week 5**	**29 June - 4 July**
4	Systems programming in C: Using UNIX system calls to get and understand process-related all the functionalities.	**Week 6**	**6 July - 11 July**
	Mid Week - No Lab	**Week 7, 8**	**12 July - 21 July**
5	Concept of thread, pthread in UNIX.	**Week 8, 9**	**22 July - 1 August**
6	Inter-Process Communication: Learning and implementing various techniques of Inter-Process Communications such as pipes, shared memory and message passing in order to establish communication among multiple processes.	**Week 9, 10**	**27 July - 8 August**
7	Process Synchronization: Learning concepts and implementations of mutex and semaphore. Solving race condition problems by using mutex and semaphore.	**Week 10, 11**	**3 August - 14 August**
8	Memory Management: Implementing a proper mechanism of mapping physical addresses from CPU generated logical addresses using techniques of paging.	**Week 11, 12**	**10 August - 22 August**

9	Lab Final	**Week 13**	**24 August - 29 August**

Honor Code

Any form of cheating, plagiarism, and/or academic dishonesty will result in an "F" grade in the lab.

Grading Policies:

The average of all assignment submissions will be counted. If plagiarism is detected, no marks will be assigned for the lab. For each day late submission, 1 mark will be deducted.

Lab Assessment Methods:

Section	Marks
1. Lab Tasks/Assignments/Homework	5
2. Class performance	7.5
3. Lab Final	7.5
Total	**20**

Assignment Submission

Assignment no.	Date of Assignment	Tentative Deadline
1 (Lab 1 + Lab 2 + Lab 3)	Week 5	2 weeks
2 (Lab 4 + Lab 5)	Week 8 or 9	2 weeks
3 (Lab 6)	Week 9 or 10	1 week
4 (Lab 7)	Week 10 or 11	1 week
5 (Lab 8)	Week 11 or 12	1 week

Assignment submissions will be taken through Google Form.

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