ANURAG ENGINEERING COLLEGE

(An Autonomous Institution)

IV Year B. Tech. CSE - I Sem

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(CS703PC) LINUX PROGRAMMING LAB

Prerequisites:

1. Any programming language, operating systems.

1. A course on “Linux Programming”

Course Objectives:

- To provide the foundation of Linux programming..
- To understand the Linux utilities.
- Be able to work with Bourne again shell (bash).
- To provide exploration of file concepts.
- To understand the process, role of kernel in process management, signal generation and handling.

Week 1:

1. Write a shell script that accepts a file name, starting and ending numbers as arguments and displays all the lines between the given line numbers.
2. Write a shell script that deletes all lines containing the specified word in one or more files supplied as arguments to it.
   a. To delete first character
   b. Deletes last second character in every line.
   c. First word and second word goes to second word and first word in every line.

Week 2:

1. Write a shell script that displays a list of all files in the current directory to which the user has read, write and execute permissions.
2. Write a shell script that receives any number of file names as arguments checks if every argument supplied is a file as its arguments, counts and reports the occurrence of each word that is present in the first argument file on other argument files.
3. Write a shell script that accepts a list of file names as its arguments, counts and reports the occurrence of each word that is present in the first argument file on other argument files.

Week 3:

1. Write a shell script to list all of the directory files in a directory.
2. Write a shell script to find factorial of a given number.

Week 4:

1. Implement in C the following Linux commands and System calls.
   i. cat II. ls III. mv.
   a. Implement in C the cat Linux command using system calls
   b. Implement in C the following ls Linux command using system calls

c. Implement in C the Linux command mv using system calls

2. Write a C program to emulate the Linux ls – l command.

Week 5:

Write a C program that takes one or more file or directory names as command line input and reports the following information on the file.

a) File type
b) Number of links
c) Read, write and execute permissions
d) Time of last access

Week 6:

1. Write a C program that redirects a standard output to a file. Ex: ls>f1.

2. Write a C program to create a child process and allow the parent to display “parent” and the child to display “child” on the screen.

Week 7:

1. Write a C program to create a zombie process.

2. Write a C program that illustrates how an orphan is created.

Week 8:

Write a C program that illustrates the following.

a) Creating a message queue.
b) Writing to a message queue.
c) Reading from a message queue.

Week 9:

Write a C program that illustrates inter process communication using shared memory system calls.

Week 10:

Write a C program that implements a producer-consumer system with two processes. (using semaphores)

Week 11:

Write a C program that illustrates file locking using semaphores.

Week 12:

Write a C program that counts the number of blanks in a text file using standard I/O

Week 13:

Write a C program that illustrates communication between two unrelated processes using named pipe.

Week 14:Review

CO-PO Mapping:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	✓		✓	✓	✓							
CO 2	✓		✓	✓	✓							
CO 3	✓		✓	✓	✓							
CO 4	✓		✓	✓	✓							