
III Year B.Tech. Bioinformatics II - Semester	L	T	P	To	C
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BI 314 UNIX PROGRAMMING LABORATORY

Course description and Objectives:

This course deals with the basics of UNIX programming protocols. This lab course will provide adequate exposure to students about shell scripting

Course outcomes:

1. Students will be able to gain adequate knowledge about the basics of UNIX Programming
2. They will be able to write a shell script to generate a multiplication table.
3. They will be able to write a shell script that copies multiple files to a directory.
4. They will be able to write a shell script which counts the number of lines and words present in a given file.
5. They will be able to write a shell script which displays the list of all files in the given directory.

Recommended Systems/Software Requirements:

Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space LAN Connected.

Any flavour of Unix / Linux

Session - 1 :

- a) Log into the system
- b) Use vi editor to create a file called myfile.txt which contains some text.
- c) Correct typing errors during creation.

- d) Save the file
- e) Logout of the system

Session - 2 :

- a) Log into the system
- b) open the file created in session 1(vi,cat,touch)
- c) Add some text (cp,mv,rm,mkdir,rmdir,ls)
- d) Change some text
- e) Delete some text
- f) Save the Changes
- g) Logout of the system

session - 3 : Filters : (Text processing utilities) Wc, od, cmp, comm., diff, head, tail, cut, paste, sort,grep,uniq Disk&backup utilities Du,df,tar,cpio,ps,who

session - 4 :

1. Write a shell script to generate a multiplication table.
2. Write a shell script that copies multiple files to a directory.
3. Write a shell script which counts the number of lines and words present in a given file.
4. Write a shell script which displays the list of all files in the given directory.
5. Write a shell script(small calculator) that adds, subtracts,multiplies and divides the given two integers. There are two division options: one returns the quotient and the other returns remainder. The script requires 3 arguments: The operation to be used and two integer numbers. The options are add(-a), subtract(-s),multiply(-m), quotient(-c) and reminder(-r).
6. Write a shell script to reverse the rows and columns of a matrix

Session - 5 :

1. Write a C program that counts the number of blanks in a text file. using standard I/O using systemcalls. Imp a) using standard I/O b) using systemcalls.
2. Implement in C the following Unix commands using systemcalls.
(a) cat (b) ls (c) mv
3. Write a program that takes one or more file/directory names as command line input and reports the following information on the file: (a) File type. (b) Number of links, (c) Time of last access. (d) Read, Write and Execute permissions.
4. Write a C program that illustrates how to execute two commands concurrently with a command pipe.
5. Write a C program that illustrates the creation of child process using fork systemcall.
6. Write a C program that displays the real time of a day every 60 seconds.
7. Write a C program that illustrates file locking using semaphores.
8. Write a C program that implements a producer-consumer system with two processes. (using semaphores)
9. Write a C program that illustrates inter process communication using shared memory system calls.
10. 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.

Text Books:

1. Unix and shell Programming Behrouz A. Forouzan, Richard F. Gilberg. Thomson
2. Advanced Programming in the UNIX environment W.R. Stevens

Reference Books:

1. Unix internals, the new frontiers Uresh vahalia.
2. The C Odyssey UNIX Meeta Gandhi.