

3/4 B.Tech - FIRST SEMESTER

IT5L1

UNIX LAB

Credits: 2

Internal assessment: 25 marks

Lab: 3 Periods/week

Semester end examination: 50 marks

Objectives:

- To familiarize students with the UNIX environment
- To learn a variety of common Unix utilities
- To learn the fundamentals of shell scripting/programming
- To write C Programs that use Unix system call interface.

Outcomes:

Students will be able to

- Implement the basic commands and file system utilities in unix environment.
- Develop programs using shell scripting.
- Implement various commands using system calls.
- Develop programs using Inter process communication mechanisms

Prerequisite:

C Programming.

Exercise1

- a) Practice session on basic Unix Utilities
- b) Practice Session on File related Utilities

Exercise2

- a)Practice session on Security and File permission Utilities
- b)Practice Session on Disk utilities
- c) Practice Session on Process Utilities

Exercise3

Practice Session on Text Processing Utilities.

Exercise4

Session-1 (Introduction to Vi editor)

- 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 z
- e)logout of the system

Session-2

- a)Log into the system
- b)open the file created in session 1
- c)Add some text
- d)Change some text
- e>Delete some text

- f) Save the Changes
- g) Logout of the system

Exercise 5

- a) Log into the system
- b) Use the cat command to create a file containing the following data. Call it mytable use tabs to separate the fields.

1425	Ravi	15.65
4320	Ramu	26.27
6830	Sita	36.15
1450	Raju	21.86

- c) Use the cat command to display the file, mytable.
- d) Use the vi command to correct any errors in the file, mytable.
- e) Use the sort command to sort the file mytable according to the first field. Call the sorted file my table (same name)
- f) Print the file mytable
- g) Use the cut and paste commands to swap fields 2 and 3 of mytable. Call it my table (same name)
- h) Print the new file, mytable
- i) Logout of the system.

Exercise 6

- a) Login to the system
- b) Use the appropriate command to determine your login shell
- c) Use the /etc/passwd file to verify the result of step b.
- d) Use the who command and redirect the result to a file called myfile1. Use the more command to see the contents of myfile1.
- e) Use the date and who commands in sequence (in one line) such that the output of date will display on the screen and the output of who will be redirected to a file called myfile2. Use the more command to check the contents of myfile2.

Exercise 7

- a) Write a shell script to generate a multiplication table.
- b) Write a shell script that copies multiple files to a directory.
- c) Write a shell script which counts the number of lines and words present in a given file.

Exercise 8

- a) Write a shell script which displays list of all files in the given directory.
- b) 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 remainder (-r).

Exercise 9

Implement in C the following unix commands using system calls.

- (a) cat
- (b) ls
- (c) mv

Exercise10

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

(Note : Use stat/fstat system calls)

Exercise11

Write a C program to create a child process and to print odd numbers in child process where as the parent process prints even numbers

Exercise12

Write a C Program to illustrate the concept of Signal handling. For Example when user press Cntl+C the system has to display "Don't Type Cntl+C".

Exercise13

Write a C program to illustrate the concept of pipe and FIFO.

Reference Books:

- 1) Introduction to UNIX & SHELL programming, M.G. Venkatesh Murthy, Pearson Education.
- 2) Unix concepts and applications, 4th Edition, Sumitabha Das, TMH.
- 3) Unix for programmers and users, 3rd Edition, Gaham Glass & K. Ables, Pearson education.
- 4) Unix and shell Programming –A text book, B.A. Forouzan & R.F. Giberg, Thomson.