

10B17CI673: System and Network Programming Lab

Course Credit: 2

Semester: VI

Objective:

To study about sockets, different (Client/server) models, protocols, processes, threads, semaphores and their programming.

Learning Outcomes:

- Be able to create sockets and analyze different (client/server) models.
- Be able to create processes, threads, semaphores and Bluetooth programming.
- Be able to analyze different protocols.

List of Experiments

S NO	Topics
1.	Introduction to Network Devices (Gateway, Router, Bridge,
2.	Introduction to Vi editor and Commands related to Unix.
3.	Introduction of Sockets (Reading Assignment).
4	Write a socket program for inputting string from client side and this string will be accepted towards server and will be sent back to client side.
5.	Write a client server program using TCP/IP Sockets.
6.	Write a client server program using UDP Sockets.
7.	Write a program to make calculator using socket (all processing should be on server side).
8.	Write a program to create process and child process using fork().
9.	Write a program that accept a given directory and list all the files in subsequent directory.
10.	Write a program that write a string to pipe and child reads the string.
11.	Write a program for semaphore set and shared memory.
12.	Write a program for Pthreads(Portable threads) Creation and
13.	Write a program to create a thread to copy a file and make a counter that can be accessed by multiple threads and use the mutex for generating a random number.
14.	Write a program that detects nearby Bluetooth devices.
15.	Write a program using RFCOMM (radio frequency) protocol and create a socket between client and server.

References

1. UNIX Network Programming by Richard Stevens
2. Internetworking with TCP/IP, Volume 3 by Douglas. E. Comer
3. Java Network Programming (Second Edition) by Elliotte Rusty, Harold
4. Linux Device Drivers by Jonathan Corbet , Alessandro Rubini and Greg
5. Beginning Linux Programming by Neil Mathew, Richard Stones
6. Unix System Programming by Terrence Chan

Evaluation Scheme:

1. Mid Term Exam (Viva and Written Exam)	20
2. End term Exam (Viva and Written Exam)	30
3. Lab Records	5
4. Regular Assessment (Quality and quantity of experiment performed, Learning laboratory skills, Attendance etc.)	30
5. Project	15

Total	100
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