

**Pre Assignment: -**

1. Explore the following tools
  - a) ftp, telnet, ssh, scp, mail, finger
  - b) hostname, ifconfig, ping, netstat, tcpdump
2. Implement simple client and server using TCP protocol, server may be designed for echo service (simply send back same string sent by client)
3. Implement simple file transfer over TCP protocol
4. Implement simple sender, receiver using UDP protocol
5. Implement Time of the Day service using UDP protocol

**Useful tools, techniques for debugging:-**

1. netstat  
eg:- netstat --inet -a -n  
netstat --inet -l -n
2. tcpdump  
eg:- tcpdump -i lo -n  
tcpdump "tcp port 5000 or tcp port 6000" -n
3. /etc/services
4. /proc/net/tcp, /proc/net/udp
5. lsof #list of open files (file descriptors)  
eg:- lsof -i TCP:5000
6. /proc/<pid>/fd # replace <pid> with process id of tcp/udp node, check entries  
#for sockets in fd table
7. strace #tracing system calls