

Socket Programming Assignment  
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1. Implement a monitoring system in which a Clients reporting system status (CPU, memory, storage) back to a central server. You may use TCP socket.
2. A simple distributed processing system. Let's say you have a trillion data points to process. Try to build a system that allows a central server to distribute them to an arbitrary number of worker servers, and then have the central server combine the results. Implement in socket programming.
3. Implement Forking TCP client-server system. You have to add one application that may be use by client.
4. Implement the client-server system where client will send GET request to server to search a document. If requested file is exist at a server it will send the client a reply formatted according to the HTTP protocol and the content of the file. File types are determined by the extension part of file names. If the document does not exist, it will reply appropriate message.
5. Design a simple proxy server use an HTTP request. The response should include some information of the request as well as some indication that it passes through the proxy (means message should print some information related to proxy server). You have to make this server more creative by application.
6. Implement a simple Internet ping server and implement a corresponding client. You could use a simpler protocol UDP. As we know that ping protocol checks the connection in terms of RTT. Hence your client program sends the ping message using UDP, print the response message from server and RTT of each packet. If there is no response then print request time out.
7. Implement file transfer protocol i.e. file transfer from client to server or server to client. For more detail you read RFC for TFTP.
8. Implement peer to peer and client - server Hybrid using socket programming.
9. Implement a MAIL-Client. Email client that will use SMTP to send email to a user account on a mail server using sockets programming to open and close a TCP connection to the server.
10. Implement DNS server using TCP socket.
11. Implement on-line calculator. In which Client sends equation as a string, server sends response (string) with result. More complex equation is server gives higher grade for equation.
12. Implement Network Performance Measurement Tool in socket programming. Note that you have to choose domain that may be different among other students if more than one student will select this question.

Every student will do assignment individually and you may add some more features that will considerable and you have to send a text file where you describe your assignment work with code file. Do not share code or review anyone else's code. Work on this assignment is to be your own.

Choose any one question from the above and it will be evaluated on Thursday and Friday (3<sup>rd</sup> and 4<sup>th</sup> March, 2016), 2:00 pm to 5:00 pm.