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# Project 3: Design and Implementation of Secondary Storage System

### Problem 1 - Basic client-server:

What this basic-client server program does is it creates a socket, looks for a connection and once it accepts a connection . The server receives requests from the client that is being read by the server and then send the response writing to the socket. The client also creates a socket and sends a request by giving the IP address and port as commands. Also, the client inputs a string and it gets reversed by the server and prints out the reverse string.

### Problem 2 - Directory listing server:

This will be the same client-server , but the client will now send the request parameters for a listing server directories on the server from the client side. The output is read through the client side on the client socket printed on the prompt the parameters are being received as command line arguments. The server executes the ls commands using the exec command and writes the output to client socket.

### Problem 3 - Basic disk-storage system :

The Basic disk-storage system is similar client -server, the client keeps running until its stop by typing “exit” command or Ctrl + C. The server understand the following command explained in the “The Disk Protocol”.

The Disk server is started with a number of tracks and sector for the disk. Is acting as secondary storage system. The basic disk client commands are to read and write from the track and sector or try the command I to get information from track, sectors and block size in the disk.

### Problem 4 – File System Server:

The file system is implemented as a combination of problem 4 and 5. The fundamental structure int the background is a general tree structure. Each directory can have subdirectories and files. In this case, the leaf nodes are either empty directories (since they don’t have any children/subdirectories) or files, since files can’t have subdirectories. The implementation of this general tree is stored in a separate file in order to preserve itself after program termination.

### Problem 5 – Directory Structure:

Problem 5 is an implementation on problem 4 which adds the functionality of a directory structure to file system Server. The user can create, change and delete directories from the client. You are able to check the present working directory by using the commands. Whenever a new directory is created, its directory is stored in the file table and also its parent directory is stored while creating sub-directories. Special feature implemented is all the commands done on a file system can also be done from within the subdirectories You can invoke commands from any Parent Directory and it’ll take effect on sub directory. Any error that occurs during the process is accordingly reported to the client.