# Lab 3: Programming a Client-Server Application

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December 13, 2023

## 1 Questions

### 1.1 Client-Server vs. Socket Programming

Typically, migrating a program from a purely socket-socket model to a client-server model is fairly straightforward. However, different programming languages have different methods to achieve a properly working client-server program.

#### 1.1.1 A widely used method to implement a client-server program is multithreading. Please explain how multithreading helps us achieve proper client-server functionality within an application.

**1.1.2 In C/C++, an alternative method to implement client-server functionality is to use fork(). Please explain how fork() helps us achieve client-server functionality within an application.**

**1.1.3 In C/C++, another potential method use to create a client-server program is select(). Please explain how select() allows us to achieve client-server functionality in an application.**

## 1.2 Creating a Client-Server Application

Before getting to the nitty gritty of programming a client-server application, some pre-requisite work must be done first...

This program is a quote of the day (QOTD) program. The server will hold the data that will be sent to the client(s).

### 1.2.1 In the language of your choice, start by reading the CSV file and storing it in some type of data structure (array, hash table, etc.).

### 1.2.2 After reading and storing the data, create a function to parse through each entry in the data structure and properly obtain the quote, the date, and the author.

### 1.2.3 Now that the data handling is finished, produce two pieces of code. One set of code should prompt a user to select Q (Quote), D (Date), A(Author), R(All Available Data), N (New Quote), and E (End Program). The other set of code should handle what occurs based on the user input.

### 1.2.4 Since you have a skeleton for the QOTD program, make it work over the network with the client-server model. *HINT: reference your code from the socket fibonacci assignment.