

Design Document: Simple Web Downloader

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1 Goals

The goal of this program is to mimic the properties of terminal commands like curl and wget using C/C++ sockets. Using these sockets to send and receive HTTP requests and responses, as well as files requested. Depending on the argument if a -h is passed in the program will output all server responses to stdout or the terminal. If no -h is passed in the argument line it will take the data received for the file requested and output to a file called "output.dat."

2 Design

So to achieve this a C/C++ library must be used to create sockets and establish connections with servers, and from there functions like recv and write are used to receive and record information passed to the program from servers. How this works in completion using the command `"/myweb hostname ip:(optional)port/(file path) (optional) -h"`. Example: `./myweb www.example.com 93.184.216.34/index.html` or `./myweb www.example.com 93.184.216.34:80/index.html -h`.

2.1 Main Function

In this function it parses through the argument line finds the hostname, ip, port, and filepath. It also creates the HTTP requests and establishes a connection with a requested server. It also receives and records information sent from the server to either stdout or a file called output.dat. In addition, the program uses a helper function called catch file length to determine when to end a connection with a server.

2.2 Catch Length

This purpose of this function is to take the header function recorded by the main function and parse through the string to find the Content-Length of the file that is going to be sent to the program. If the function finds a content length it will return the length number. If not the function will return a -1.