

Web Server

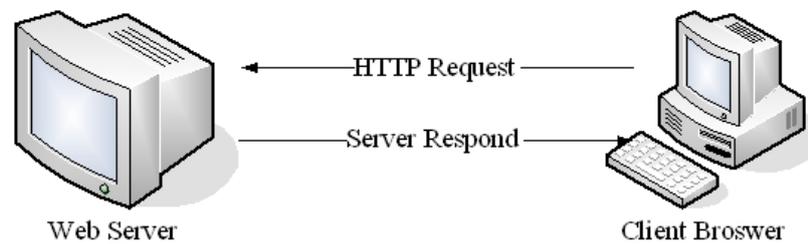
--- Term Project Specification

1. Purpose

A web server is a program that accepts HTTP request from all clients (web browsers) and serves them with corresponding pages. In this project, you are asked to design a multi-threaded web browser that is capable of a set of HTTP requests.

2. Background

Operations in a web server: the basic operation of a web server is like below:



When the web server is activated, it waits for requests from clients. Then when a request is coming to server, server returns the corresponding response. In detail, when a HTTP request from a client comes to the server, the server translates the URL to a physical file system path. Whether the web server can find the requested file or not, it should return a message to the user.

Hint:

Refer to RFC2616 for more information. Read carefully about how a client communicates with a server. (RFC2616 section 5).

3. Functional Requirements

Your web server program should implement following:

1. Concurrency(multi-threaded server)
2. Load limit
3. Protocol based on HTTP1.1.

There are three items that need to be implemented:

- A. MIMI message decoding
- B. CGI program support
- C. Status/Service code(Listed below)

Service code	Description
200(OK)	Return found content
403(Forbidden)	The server does not understand the request

404(Not Found)	The server did not find the requested document
503(Service Unavailable)	The server is currently unable to handle the request.
You can implement as many as you can. Just try your best!	

4. Testing

TAs will test your project step by step to verify that all functional requirements you implemented are correct.

5. Problem Discussion (answer as many as you can to get extra points)

- (1). Why do we use multi-thread technique to design a web server? State it in detail.
- (2). We can use processes to handle incoming requests instead of using threads. Compare the differences between these two techniques.
- (3). There are some security issues in designing a web server. Can you come up with some techniques regarding the security in a web server briefly?
- (4). What did you learn in this project?

6. Report Format

The report should contain (1) purpose, (2) method, (3) implementation description, (4) program listing (comments are needed), and (5) screen dumping: the process of the compilation and result of the program; as what you include in a regular mini-project.

Reference

- [1] RFC1945, "Hypertext Transfer Protocol -- HTTP/1.0". Available at <http://www.faqs.org/rfcs/rfc1945.html>.
- [2] RFC2616, "Hypertext Transfer Protocol -- HTTP/1.1". Available at <http://www.faqs.org/rfcs/rfc2616.html>.
- [3] Apache web server documentation. <http://httpd.apache.org/docs/trunk/>.
- [4] thttpd web server. <http://www.acme.com/software/thttpd/>.