



الأكاديمية العربية للعلوم والتكنولوجيا والنقل البحري

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COLLEGE OF ENGINEERING AND TECHNOLOGY
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Lab. Project

An HTTP Server and a Client

Your task is to write a **server** and **client** (a.k.a browser) for the **HTTP** application-layer protocol.

Remember

1. The client establishes a TCP connection to a particular **port** on the server. The default port for HTTP is port 80.
2. If you are running a unix-like operating system, port 80 may be blocked and only the superuser is the only user allowed to run any servers that listens on the first 1024 reserved ports.
3. A client may specify a particular port explicitly rather than the default port, example:
http://hostname:8888
4. An HTTP server listening on that port waits for a client's request message.
5. An HTTP client initiates a **request**.
6. Upon receiving the request, the server sends back a **response** containing a **status** line followed by a **message**, that might be the body of the requested page or an error message.
7. There are two main standards of the HTTP protocol: HTTP/1.0 and HTTP/1.1.
8. The RFC 2616 defines the HTTP/1.1.

Typical HTTP Session

Client's Request

```
1 GET /index.html HTTP/1.1
2 Host: www.mit.edu
3 <newline>
```

Server's Response

```
1 HTTP/1.1 200 OK
2 Date: Fri, 11 Dec 2009 23:16:12 GMT
3 Server: Apache/1.3.41 (Unix) mod_ssl/2.8.31 OpenSSL/0.9.8j
4 Last-Modified: Fri, 11 Dec 2009 15:48:39 GMT
5 ETag: "71e8dca-2ba5-4b2269d7"
6 Accept-Ranges: bytes
7 Content-Length: 11173
8 Connection: close
9 Content-Type: text/html
10 <newline>
11 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/↵
    xhtml1-strict.dtd">
12 <html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
13 <head>
14 <title>MIT</title>
15 ...
16 ...
17 ...
```

Some Common Status

1. 200 OK
2. 400 Bad Request
3. 404 Not Found

Constraints

Server

1. Your server should be a multi-threaded web server, it should handle more than one client at a time.
2. Your server's port should be configurable (read from a configuration file).
3. Your server should handle the three common status shown above.
4. Your server must handle HTML files, but other file types (as images) is optional.
5. Your server will be tested against well-known browsers (as Firefox).

Client (Web Browser)

1. Your client should at least contain a text box (to enter the url in) and a pane (to display the page).
2. Your client should be able to initiate an HTTP connection to any HTTP server, sends the **request** and receives the **response** and finally saves the response body as an **HTML** file.
3. You can use the **JEditorPane** class with **URL** class to display the HTML file.
4. If the **URL** class is to be used in combination with the **JEditorPane** class only use it to display the saved HTML file.
5. Do **not** use the Java **URL** class to handle the HTTP session, you have to use the stream sockets (TCP) to handle the HTTP protocol.
6. Your client will be tested against well-known servers (as Apache).