IIT HYDERABAD, DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CS3041 - Assignment 2

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In the last assignment you have implemented your own application layer protocol between a client and server. In this assignment you would learn how to communicate with server/client using standard protocols. The goal of this assignment is create a web server and a web client that work well with standard web client and web server.

1 PART1: CREATING A WEB SERVER

You will develop a web server that handles one HTTP request at a time. Your web server should accept and parse the HTTP request, get the requested file from the server's file system, create an HTTP response message consisting of the requested file preceded by header lines, and then send the response directly to the client. If the requested file is not present in the server, the server should send an HTTP "404 Not Found" message back to the client.

1.1 RUNNING THE SERVER

1. Create a .html file for your home page and store it in the same directory that the server is in (e.g., cs13b1099.html). Your html file should have atleast 5 other links to other pages. If you cannot create your own then download any web page with multiple links and store it locally. Make sure that all the linked files also stored in appropriate paths.
2. Run the server program.
3. Determine the IP address of the host that is running the server (e.g., 192.168.120.45).
4. From another host, open a browser and provide the corresponding URL. For example: http://192.168.120.45:6789/cs13b1099.html. "cs13b1099.html" is the name of the file

you placed in the server directory. Note also that use of the port number after the colon. You need to replace this port number with whatever port you have used in the server code. In the above example, we have used the port number 6789.

5. The browser should then display the contents of cs13b1099.html. If you omit ":6789", the browser will assume port 80 and you will get the web page from the server only if your server is listening at port 80. You can also try running your server on port 80 and check if you are able to access the content from the browser.

6. Click each of the links in the webpage and the corresponding pages should be displayed.

7. Then try to get a file that is not present at the server. You should get a "404 Not Found" message.

1.2 What to Hand in

You will hand in the complete server code along with the screen shots of your client browser, verifying that you actually receive the contents of the HTML file from the server.

2 Part2: Creating a web client

Here, you would develop a web client that would request files from any web server in the Internet. So, instead of using a browser, you would use your own HTTP client to download from the server. Your client will connect to the server using a TCP connection, send HTTP HTTP GET requests to the server to download all the linked pages from the .html page. You can limit the maximum number of links to some fixed number. The client should take command line arguments specifying the server IP address or host name, port (standard HTTP port number), and the path from which the requested objects are to be downloaded.
$./client < server\_host > < server\_port > < file\_path >$

2.1 Running the Server

1. Run your client program with appropriate command line arguments.

2. Your client program downloads the requested files and stores them in the local directory.

3. Open the local file in the browser and see if the files are downloaded.

4. Then provide a file that is not available in the server and you should receive the error message "404 Not Found" message from the server.

2.2 What to Hand in

You will hand in the complete client code along with the screen shots of your client output, verifying that you actually receive the contents of the HTML file from the server.

3 SUBMISSION GUIDELINES

All the deliverables must be uploaded in the Course Web Page on Moodle as a single compressed file. The due date for submission of the assignment is Sunday, Sep 13, 2015, 11:55 PM. There would be one day cut-off date for the submission. If you do late submission after the due date and before the cut-off date there would be 20% penalty in your evaluated score. After the cut-off date you would not be able to submit your assignment.

You should also get your program execution evaluated by the TAs before cut-off date.

4 EVALUATION METHODOLOGY

- Correct implementation and execution of of HTTP Server (40)
- Correct implementation and execution of of HTTP Client (40)
- Display of proper and informative output messages (10 marks)
- Code Documentation/Comments/README file (10 marks)