CS420 Computer Communication and Networks

Assignment 4
Assigned: 10/3/16
Due: 10/11/16 11:59 PM

In this assignment, you will develop a simple Web server in two steps- in the first part, you will create a TCP server that is able to receive an HTTP packet from a browser, and in the second step, you will implement the GET functionality that allows the server to respond to a browser request. At the end of assignment 5, you will have built a Web server that is capable of processing simple web requests such as an HTML page with embedded images. As you are developing the code, you can test your server from a Web browser. But remember that you are not serving through the standard port 80, so you need to specify the port number within the URL that you give to your browser. For example, if you are testing your program on toolman, your server is listening to port 5910, and you want to retrieve the file index.html, then you would specify the following URL within the browser:

http://toolman.wiu.edu:5910/index.html

If you omit ":5910", the browser will assume port 80 which most likely will not have a server listening on it.

To simplify this programming task, you should develop the code in two stages. In the first stage, you will write part of the server that simply displays the contents of the HTTP request message that it receives. After this program is running properly, you will add the code required to generate an appropriate response.

Web Server in Java: Part I

Write a java program named **HttpServer.java** that opens a **TCP** socket at a user specified port to listen to HTTP GET requests. This should be relatively easy and similar to the TCP Socket programs that we wrote in class. Create a Socket that listens for incoming client requests at a specified port. When the server receives a request, obtain the input and output streams from the socket. Read the HTTP packet from the client as a set of strings, each of which is terminated by a line feed (\n). Once the packet is read, display the content to the screen.

How would you know that you are done reading the packet?

The last string should have length zero since it only has a carriage return (\r) and line feed (\n) character in it.

Parse the request line in the packet, and print the following information:

Request Type:
URL Requested:
HTTP version:
Header Line1:
Header Line 2:
…
Header Line n

Specifications

The web server should be started with the following command

java HttpServer <port number>

where port number is user specified at run time.

What to submit

Upload your code on WesternOnline as well as on toolman.wiu.edu. Use the *submit_cs420* program to submit your source code (HttpServer.java) only on toolman.

For this assignment, you should use the command

submit_cs420 –s hw4 HttpServer.java

to submit your program. To verify submission, use the command

submit_cs420 –l hw4