Computer Network Project #1

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- Description of My Server's Design

1. **Open the server**
   - Register the signal function named 'cleanExit' that calls exit function when the 'SIGTERM', 'SIGINT' signal is called
   - Use the INADDR_ANY value on struct sockaddr_in -> sin_addr -> s_addr to allow connecting with any IP in the PC
   - Get the custom port (1026~) from 'argv' variable and bind it

2. **Get the request header whenever the client tries to connect**
   - The character array named 'buffer' stores the request data
   - By using the string library (as like getline, append, and so on), get the lines on the variable named request_header
   - While receiving the request message, the server understands the request method, file_path and the http_version from the first line of the request header message
   - After receiving the request message, print it all
   - Get the request messages within 10 (define BACKLOG 10) clients

3. **Send the response header data (the function named 'send_response')**
   - The first line of request header is consist of ① Method, ② File Path, ③ HTTP Version
   - If you finds that the ① Method is a 'GET', you have to send the response data with file data
   - If you finds that the ② File Path is not valid, you have to send the response data with the status code 404 and send it
   - If you find that the ② File Path is valid, make the string variable to be consist of the contents with the status code 200 (success) and the MIME (Multipurpose Internet Mail Extensions) type in Content-Type header
   - Finally, send the response data with header and appended file data

4. **Close the server whenever if you want it**

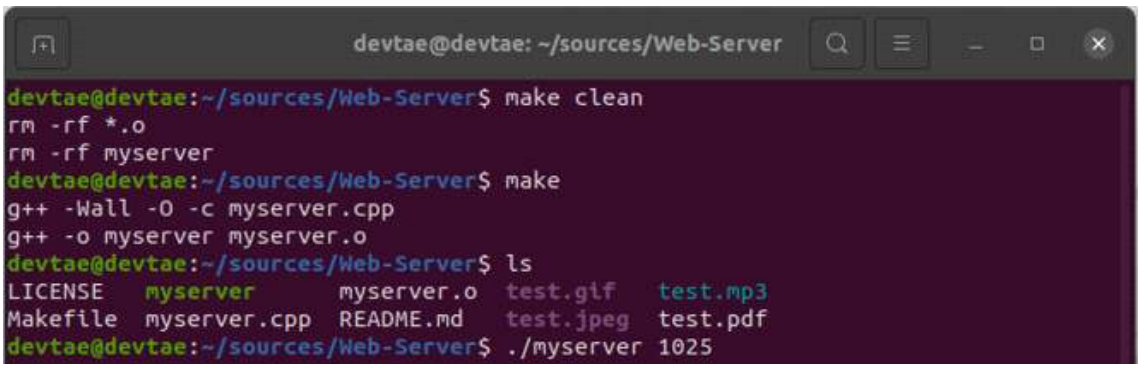
- Difficulties that I faced and the Solution how solve them

1. **The insufficient knowledge of the C++ language**
   - Situation : I didn't know how to develop the web server in C++.
   - Solution : By using the presentation of the Computer Network lecture notes and the CourseWeb, I could learn how to use it and make it.

2. **The insufficient knowledge of the web server**
   - Situation : I didn't know the principle how to operates the web server.
   - Solution : With the RFC 1945 and searching internet, finally I could get the information the form of the header file and how to communicates on server between clients and server

- Sample Outputs

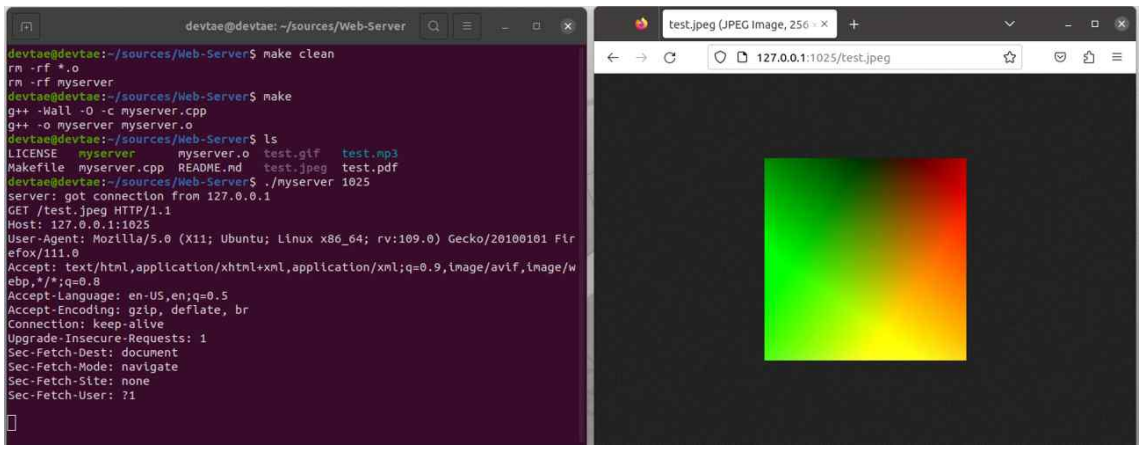
<Compile and Open the server>



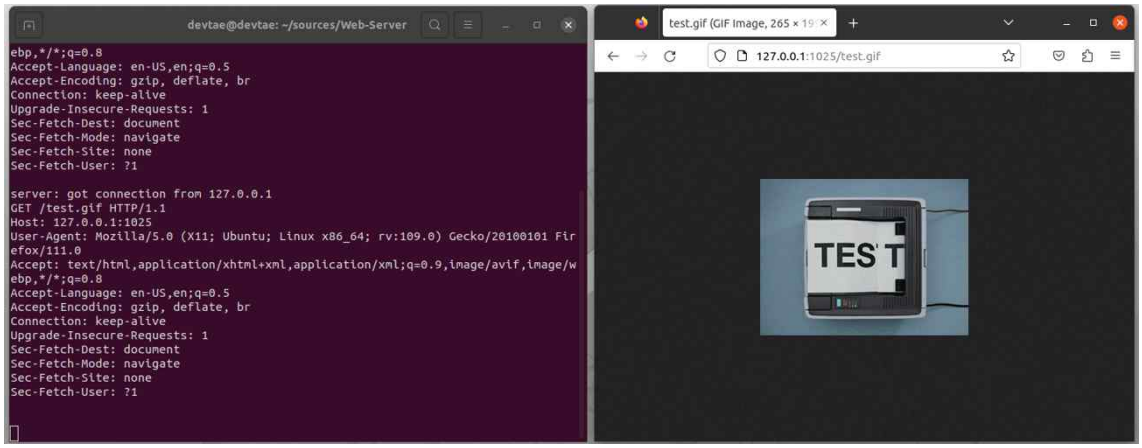
<Overview>

Type	.jpeg	.gif	.mp3	.pdf	External Connect
Success / Failure	Success !	Success !	Success !	Success !	Success !

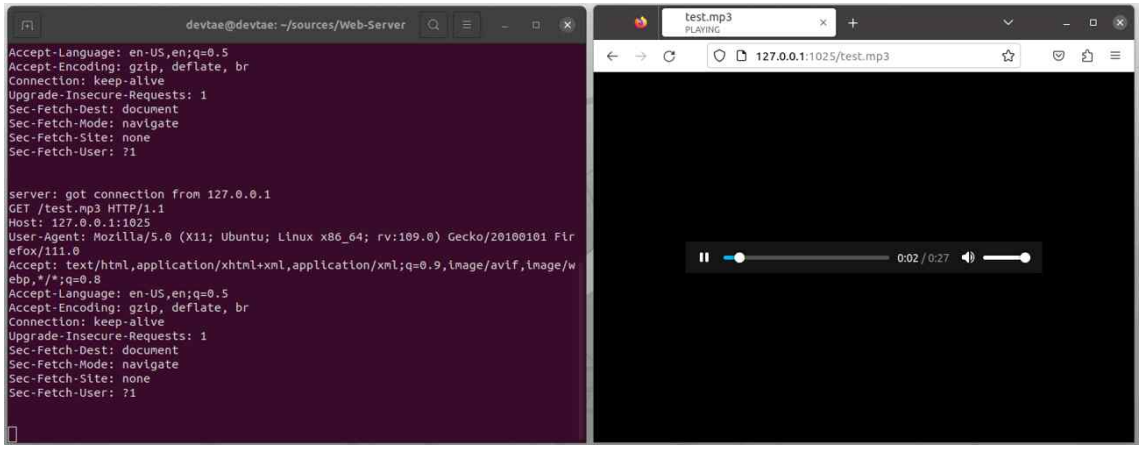
<Response the test.jpeg>



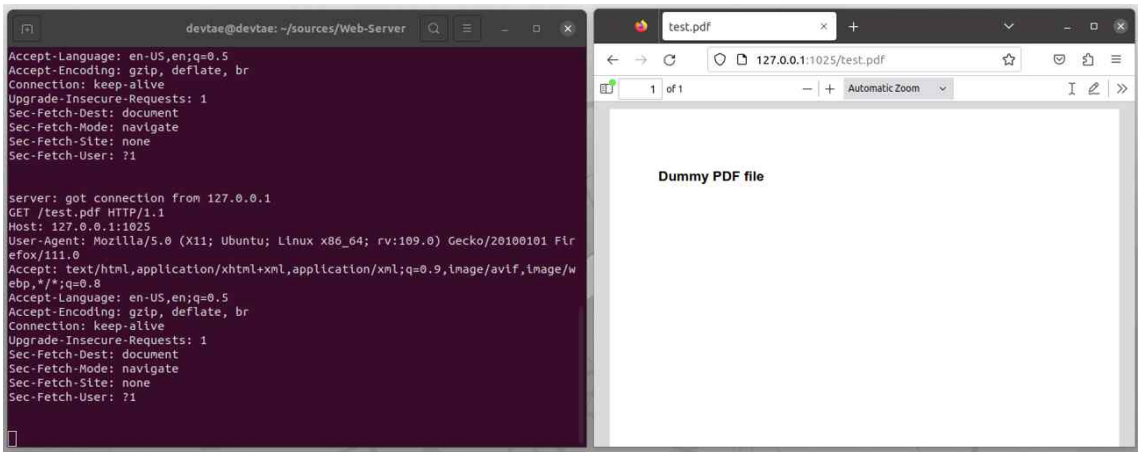
<Response the test.gif>



<Response the test.mp3>



<Response the test.pdf>



<Connect by external device>