Weekly Report

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I found it hard to write a weekly report during the winter holiday , so I decide to hand in this one at the end of these days . Although I have not written on time , I actually tried my best to used as much time to study as possible during this month . What I have done is simple , I read the whole book of CSAPP (computer system : a programmer's perspective) except for Chapter 4 5 with every practice problem solved, and finished the proxy lab among the labs .

1. CSAPP

The famous book named CSAPP presents good description of computer system . Because I prefer to do research of issues of computer system , I find it helpful for me to go through the whole book and now I have a fundamental and comprehensive understanding of the corresponding issues .

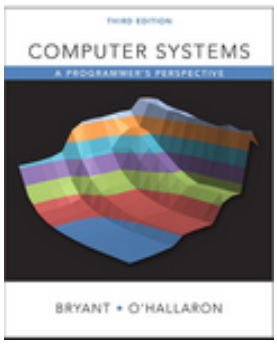

Fig 1 : The textbook

Since the time of the holiday is limited , I don't have enough time to solve every practice problem solved . The problems listed in this book can be divided into two kinds : practice problem , these problems appear among the main text , which have standardized solutions listed at the end of the corresponding chapter ; homework problem , as a contrast , these problems appear at the end of the corresponding chapter but without solution at all . I attach great significance to these problems , simple because only when I solve them personally , I manage to understand what the book says .

What is important to mention , one of the reasons why I choose to learn this book is that it has much program (in C) in it . Different from other computer system books , I think a practical approach helps a lot . In the lab of a simple proxy server (Internet experiment , which will be mentioned later) , I referred to the code in this book and received a good effect .

Maybe the most famous side of this book is its labs (Labs for self-study students) I have tried and finished one of them . I think the difficulty is kind of beyond me . So I really takes pains doing it . I have newly abandoned Windows and installed pure Ubuntu on my laptop . So I am not familiar with it . I came across many problems .

2. PROXY LAB

All the official resources is here . And I submitted my work in git hub , where the proxy v0.2 is the final version . I use CLion IDE , one project for tiny server and one for proxy .

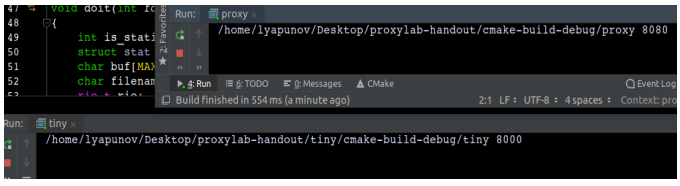

Fig 2 : The begin of tiny server and proxy routine

After sending message to the proxy via a terminal , I can successfully receive a response from the tiny serve through the proxy .

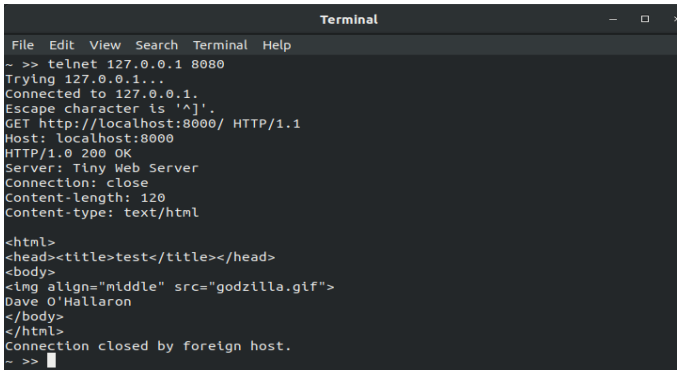

Fig 3 : The message in terminal

And what the tiny server and the proxy say are as the following :

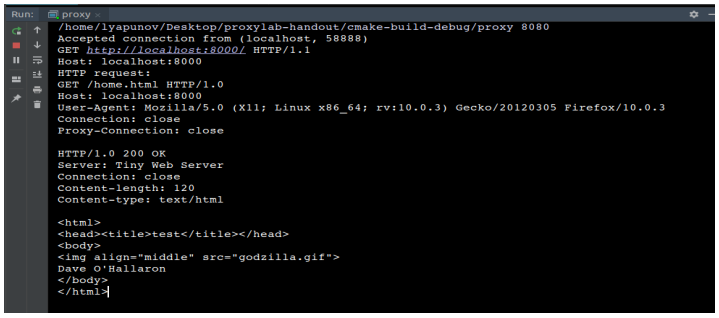

Fig 4 : The message in proxy

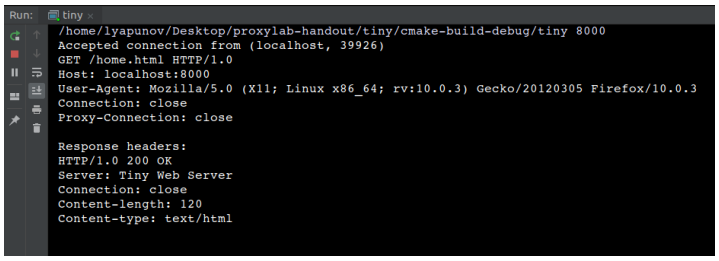

Fig 5 : The message in tiny server

The response contents of recently visited website will be stored in cache . If what we call is cached , an unnecessary web connection and an unnecessary time consumption can even be avoided .

I just simply discuss some problems that were solved . From the beginning , a project in CLion need a CMakelist.txt to generate a Makefile . I learned what CMakelist.txt is , what Makefile is and to write CMakelist.txt for a project with extra libraries , C header files .

I didn't step into the main topic at once . Instead , lacking experience of writing network program in C, I want to go through basic concepts first . I tried to write a simpliest client communicating with the processing tiny server . I copied the csapp code example "echo client" to call the server , but both the client and tiny misbehave . Although the connection can be created , tiny server just can not read request online and sends no response . In order to figure out the reason for this ,I think it is important to configure a debugging method on CLion for convenience and necessity . And I did that , running programs in debugging mode really helps much . Then I managed to implement a client which behaves well . The source code is shown here .

Finally a sequential caching web proxy is implemented here . This lab has a autograder in it which can run on Linux shell . Since a concurrent version is quite more difficult to implement , I haven't finished that right now . This version can get 55 / 70 from the autograder , however , after viewing the code of the autograder I know that it regards my cache part incorrect by forcing me to curl a closed server , which is ridiculous . I found solutions online , and they can just get 55 / 70 from the autograder as well . So I think my implementation is right .

3. PROBLEMS AND PLANS

Now I have a deeper and wider understanding of computer system . But other issues haunting me such as the detailed implementation of virtual memory and an operating system . I can just use functions provided by operating system but have no idea of how they are implemented . I am also interested in the issue of solving process deadlock .

After a Ubuntu system is installed on my HP spectre machine , whenever I restart my laptop , I have to trigger the administrator mode by clicking <ESC> button and enter by choosing the correct drive . Which is troublesome . I do not power my computer off these days . But I will try to figure out a solution to this . Besides , I don't think Linux is as great as it is complemented especially when I have to face strange problems while installing software such as Matlab .It is very annoying .

This will be a exhausting semester for me as a computer science student , I do not expect to have time to write a weekly report during it ,because I feel it crucial to manipulate these fundamental topics of computer science which will be taught in this approaching term . But in my spare time I also want to read papers . Besides , a task of writing a paper review issued by Mr. Zhang (Zongpu Zhang) should be handed in within these days .