CS 494/594 Programming Project Specification

Spring 2019

You can do your project either individually or with one other partner.

You can use any high level programming language for your project. Use of open-source libraries if permitted but your network protocol design must be your own.

If you are planning to build your project on top of existing open-source libraries (e.g. Python's Twisted API) please run it by me.

Project Option 1: Internet Relay Chat

IRC or Internet Relay Chat is an application that lets multiple users communicate via text messages with each other in common "virtual" rooms. You will be implementing an IRC client and server from scratch in this project using whatever programming language you are comfortable with. As the programmer, you are in charge of all of the protocol specifications and functionality of your IRC application. However, at a minimum, the basic functionality of being able to create a room, join a room, leave a room, and list rooms available should be implemented. Other features such as private chat, file transfer, buddy lists, etc. can be added, but must be specified and documented. Please refer to the IRC project grading criteria. Graphical user interfaces (GUI) development is not required for this project.

Along with the source code of your IRC client and server, you will turn in an RFC-style document that describes your IRC protocol. That is, describe the format of the messages that the client and server will exchange in order to properly implement the IRC application. An example RFC that you may base your protocol specification on is the IRC RFC 1459.

Project Option 2: Networked Games

You are to choose a multiplayer game, specify a network protocol for supporting the game on-line, and implement the protocol faithfully in a programming language of your choice. The protocol should be robust and concise. In particular, the client should perform input validation and only send the server valid messages. In addition, formatting strings and user-interface messages should be mainly generated at the client. While the game should be fully functional, you will be mainly graded on the quality of your protocol specification and implementation.

Along with the source code of your game client and server, you will include an RFC-style document that specifies your game protocol messages. An example RFC that you may base your protocol specification on is the IRC RFC 1459. The RFC will specify the format of the messages that the client and server will exchange in order to properly implement the on-line game.

Please finalize and discuss grading criteria for this project with the instructor by 5/31/2019.

Project Option 3: Propose your Own Project

Students can substitute a project proposal of their own instead of the IRC application or the networked game application. If you wish to do a project outside of either of these two, please discuss your project and seek approval from the instructor beforehand.

Please finalize and discuss grading criteria for this project with the instructor by 5/31/2019.

Programming project source code and network protocol specification:
6/9/2019 11:59:59 PM PST

Soft-copy of project source folder shared with the instructor. Share your Github or Dropbox folder with: nbulusu@pdx.edu

Programming project demo and code exam: 6/10/2019 and 6/11/2019

Demo slots will be assigned via a Doodle poll. Students who cannot make it to either of the proposed demo slots, can request a demo slot on an EARLIER date. No demos will be scheduled after 6/11/2019.

To discourage students from obtaining code from other sources, you will be walking through your code with us as well as giving us a demo.

We will also ask specific questions about the code that you are expected to answer. **You are advised to have complete knowledge of all code that you turn in.**

You must bring a hard copy of your protocol specification to the demo.