**Final Project (20%)**

For this project teams of two students will collaborate to create a simulation or a program that implements a Networking-related problem. You may choose to extend a program we already did in class, or a brand new programming project of your choice. Please explore the programming problems from the end of the chapters for ideas (this is a very good resource!).

**Possible projects**

* Expand our Multithreaded Chat Server (ex. add functionality to list all clients and to send messages to only one client)
* Expand our SMTP client (Hw4) (ex. add a GUI)
* Extend the Webserver you developed in Python (Hw3)
* Develop a web-proxy (Ch.2)
* Implement a reliable transport protocol (Ch.3)
* Implement a ping application that checks if a remote computer is reachable over Internet (Ch.4)
* Implement the distance-vector routing algorithm for the network at pg. 429 (Ch.4)
* Implement a simulation of a routing algorithm (ex. Dijkstra) (Ch. 4)
* Simple applications of client-server example client (ex. hangman; voting over client-server) (Ch.2)

**Safari Books Online Resources (free through CoW library)**

* Python Network Programming Cookbook, M. O. Faruque Sarker
* Learning Python Network Programming, M. O. Faruque Sarker; Sam Washington
* Socket Programming in Python (Guide) by Nathan Jennings; https://realpython.com/python-sockets/#multi-connection-server

**Deliverables**

* ~15-minute presentation including a demo of your project
* **Well-commented code.** **Make sure you make clear which is your own code, and which code is “borrowed” (cite all your resources!). At top of your file include the following:**
	+ **names of the team members**
	+ **brief description of the project**
	+ **brief description of your main contribution**
	+ **citations of borrowed code**

 **Timeline for both options:**

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| --- | --- | --- | --- |
| **Due date** | **Grade** | **Assignment**  | **How to submit** |
| Date 1 | 5% | Choice of project to be approved by instructor – one paragraph description | Bring print out to class  |
| Date 2 | 5% | Class presentation (you will be evaluated using a rubric) | Bring ppt and demo to class |
| Date 3 | 10% | Code | Link for upload will be provided soon |