CMSC 413 – Course Project

You can select one project from the list below. No proposal is needed. If you want to propose your own project, please write a one-page proposal to describe your idea, your approach, your initial related work search results and submit it on Canvas by Oct 29th. If you want to get a special project from the professor, please make an appointment to discuss your topic. It can be quite rewarding if you like to do something unique and challenging. No matter what project you choose, you should partner with at least one classmate but the team should not be larger than 3 people. You are expected to submit the project source code and report to Canvas. A demo shall be scheduled with the professor before its due date. The report should contain the software architecture design and user manuual. The demo is due on Dec 8 and the project report is due on Dec 15.

Project 1: Design and develop a password organizer, in which you can store the passwords you use for different accounts and occasions. The passwords should be stored in encrypted form to avoid being stolen by malware. You can use a master key to unlock the passwords when you want to access them. The organizer can be a website, software, a smartphone app, or all of them. You can add miscellaneous features to make your software easy to use. Good usability and user interface will boost your project grade. (Challenge level: medium)

Project 2: Implement a firewall (can be a web proxy or a software running on the home router) for your smart home network. The firewall should filter attack traffic, such as SYN floods and port scanning, from external sources. Your firewall should have an interface for the homeowner to configure policies and sends a daily digest of detected attacks to the homeowner through emails.

Your firewall should be able to block attack traffic and forward benign traffic based on the policies configured (you can design your own policies or use existing ones). Adding more features will boost your project grade. An easy-to-use interface for users to configure the firewall system will be preferred. For this project, you may also develop a side program to simulate attack traffic to test your program. (Challenge level: high)