

## **Thesis Project Portfolio**

### **Building a New Grading System for CS 2110: Software Development Methods**

(Technical Report)

### **Regaining Control Over Data and Privacy**

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

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## **Sociotechnical Synthesis**

Software development has always been about engineering a technological solution to a problem that solves the users' problems, in such a way that it is easy and intuitive for the user to use. This is apparent in many of today's products. Search engines provide answers to questions at the presses of a few buttons. Social media allows for more connectivity between people in a clear and succinct fashion. However, in making products more appealing to run businesses, companies have sacrificed users' privacy. In my technical project, I researched what concepts make a product easy and intuitive for a user to use, and applied those concepts to a newer version of an existing product. In my STS thesis, I examine the lack of privacy on the Internet and policies that aim to regain the right to privacy on the Internet.

The technical portion of my portfolio looks into User Interface and User Experience (UI/UX) concepts and how to implement them. To apply these concepts, I looked to the assignment submission system currently in place for UVa's Software Development Methods course, due to complaints by both students and graders in using the product. In the end, a new user interface for assignment submission was drafted.

The STS portion of my portfolio looks into data and privacy, current policies in place to protect privacy, and possibilities for solutions to a norm of a right to privacy. In particular, it examined the difficulty to protecting data and privacy. It also investigated the EU's General Data Protection Regulation plan and the California Consumer Privacy Act of 2018, two policies that led the charge to a right to privacy. The main issue came to be that users did not know who and where their data had gone to. They expect to use a certain product and give up some personal information to do so, but some companies had sold or given personal data for profit, without a user's permission. The two policies did a good job outlining some of these issues and providing

rights to privacy, but may have slowed innovation and hindered small businesses. Despite this, with more finetuning, policies seem to be the main way to protecting citizens' privacy on the Internet.

The capstone project idea was originally an entire product – a submission system that could be tested and potentially used in proceeding semesters. However, being a two-person team and with many impediments out of our control, we were not able to get a web server to create a full product and really only could do a third of what we had in mind. If this project continues, we did our best to modularize front-end code so that if the back-end is developed, combining the two would be quick and simple.

I would like to thank Professor Ferguson for the guidance through the portfolio, especially the STS portions of my thesis. I would also like to thank Nada Basit for her advising throughout the capstone project and assistance through the impediments we had.