*Privacy and Data Encryption On Your Computer and Phone*

New Mexico

Supercomputing Challenge

Final Report

April 2, 2021

Team Number ?

Sandia Preparatory School

Team Members:

Abby Poe

Team Captain Mackenzie White

Teachers:

Mrs. Joelle Shaw

Mr. Nick Aase

Project Mentor:

Jesse Crawford

Summary

In this project, my partner and I are working to create an extension for the Chrome browser that protects your email and phone number. We chose privacy as our area to improve because data loss is a serious problem in America. According to our research, 6% of PCs will suffer one form of data loss in any given year, and in 2018 alone, data loss was up to 33%. That’s a total of 7.9 billion records exposed.

We are trying to write a program that will stop you from unwittingly giving out your phone number and email address. Basically, our extension simply works as a checkpoint. If you are about to give your email or phone number to a shady-looking sight, our program will stop you and ask if you are sure you want to do that. We originally were going to use Python for this, but after writing a bit decided to use Javascript instead, because it was better suited for running an actual extension.

We joined this project because we are both interested in the many different applications of coding and the ramifications of privacy and data loss on society today. Coding is a diverse and useful tool that we both found beneficial to learn, and this program is teaching us about time management, thinking around the limitations of something, and trying to find a simple solution to a complicated problem.

In this project, we were working on better ways to keep your phone number and email address encrypted and safe. We are using an extension for Chrome that stores your data in a safer manner. A plug-in, or an extension, is basically a software component that can add, store, or change your browser in ways that can customize your search engine to your liking. We originally used Python for this, but switched to JavaScript. Python and JavaScript are both coding languages, used to write new programs for your computer and phone. However, there are several differences between them. Javascript is a scripting language, it gives computers and other tech ‘scripts’ of code from which they follow. Python, on the other hand, codes virtual objects, giving each one individual attributes. These objects can then interact with each other, creating ‘building blocks’ for coders.

We are addressing the problem of data breaches and the different types of encryption in our project. Data loss is a serious problem for businesses of all sizes— losing files means losing time and money to restore or recover information that is essential to your business. Data rarely gets recovered fully, leading to an impact on the security and finances of a business. And if important information gets stolen, it could be used to seriously harm, hijack, or steal anything you have stored online. We are currently trying to encrypt your email and phone number via an extension to Chrome. A Chrome extension is a piece of software that can change and adapt your browser to better fit you personally. It can get rid of ads, install new apps and features, and better protect your privacy.

There are a few limitations to our project. Our extension is not meant to completely hide your private information, only make sure you aren’t giving it away to a site that could use it to harm your online profile and persona. It is also only meant to protect your email and possibly phone number, not any passwords or other information. But what is our project, exactly? Our program is actually relatively simple. When you input your email address or phone number into a suspicious site, it automatically asks you if you’d really like to do that. In this way, it simply alerts you to the fact that this website may not be safe, without actually forcing you to do anything. We have determined a few things with the extension over the course of the tests we were able to do. We coded it in Repl, we used html, js, CSS, and json. Some of the problems that we encountered were finding what actually worked to link it with chrome, and when we did we had a few problems trying to store the information because we kept getting the results of [object promise], we’ve learned how to encrypt things and go into the JS database.

We experienced a few setbacks in our project. We switched languages mid-program, encountered several unforeseen problems, and overall had a bit of trouble learning and coding in two different languages. This is the reason we do not have conclusive results as of yet in our testing. One of our main problems is that we are trying to code it so that right as you enter it the plugin will run it through a function, hash it and then check if it matches your phone number or email address. It is supposed to run smoothly, but it simply stops. So we cannot show any concrete results as of yet as we are having some unforeseen problems with our project. This may be possibly because we are coding it in two different languages.

Some recommendations we have for our project could be maybe checking up on how the mentors have helped during the course of the project. We mention this simply because ours didn’t have any real interactions with us at all, and never responded to any of our questions or emails.

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