Name(s)	Project Number
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Project Title
Are Your Passwords Secure over Public Wi-Fi?

Abstract

Objectives/Goals
Do you ever give a second thought to the fact that every time you use WiFi you could be sending your passwords not to the Internet, but to a hacker? My hypothesis is that if you use public Wifi, then your passwords are at risk of being obtained by hackers unless you use HTTPS encryption or a VPN. I will be testing this hypothesis and proving whether or not you are secure. If you are not, I will continue testing to find a way to protect and make yourself secure. My overall goal for this project is to make people aware of the danger they could be putting themselves in everytime they use WiFi at Starbucks, or the airport, and give a solution to that danger if it exists.

Methods/Materials
I tested my hypothesis by setting up my home WLAN to replicate an unsecured public WiFi hotspot (ie. Starbucks). I got access to two computers and made one computer the victim, and the other the hacker. I connected both computers to the unsecured network I had set up. I then proceeded to log into various fake accounts I had made on differing browsers on the victim computer with or without a VPN. Meanwhile, I tried to obtain the passwords through Man-in-the-Middle (MITM) Sniffing and MITM SSLStrip attacks from the hacking computer; recording all my results.

Results
The results were scary. I was able to obtain any password through HTTP on every browser easily by running a MITM Sniffing attack, but when using a VPN the passwords could not be obtained. When running a MITM SSLStrip attack, I was able to successfully obtain the passwords for Facebook, Huffington Post, and Business Insider on all browsers. Gmail and Paypal passwords were only obtained when the target was using Internet Explorer or Safari. The Twitter password was only obtained when using Internet Explorer, Google Chrome, or Safari. When using a VPN, no passwords were successfully acquired.

Conclusions/Discussion
In closing my project was a success. I have proved that a user#s passwords are not secure over public WiFi. I have also proved that there are options to secure yourself. Whether it#s having your email contacts used for phishing, your money in the bank being withdrawn, or even identity theft, using public WiFi without taken measures to secure yourself has dire ramifications. This project, if successful, will show people the hard statistics of risk involved in public WiFi, and teach and motivate them to protect their passwords and their security.

Summary Statement
The purpose of this project is to prove whether or not a hacker can obtain your passwords over public, unsecured WiFi, and if there is a way to protect yourself.

Help Received
My dad helped me form a solid hypothesis