

# **Suite 'n Secure**

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## Abstract

Cyber-attacks are on the rise, becoming more prevalent in every sector of industry, many users feeling unarmed and under-educated in the fight against these threats. With this problem in mind, *Suite 'n Secure* aims to provide a platform to raise awareness and educate those who are often left out of the conversation of global cyber threats, the everyday user. We want to provide a ground-up, easy to understand, lesson plan on what potential cyber threats the average user will encounter in their time on the internet, at work, and with their family.

## Introduction

### Project Summary:

*Suite 'n Secure* is a web-based cybersecurity training course that will educate all kinds of end users varying from a mom at home to an engineer at a desk job on basic protocols and things to follow when trying to protect yourself from a security standpoint.

### Problem Statement:

There is a lack of wider education on the dangers of cyber threats in the 21st century. The everyday computer user is commonly the victim of cyber-attacks, whether they be phishing or scams that lead to their personal or professional information being exposed. This education gap is something that can be remedied with easy-to-read and understandable lessons on what cyber threats are out there. We hope that *Suite 'n Secure* can provide these lessons to the average user for free!

## **Solution:**

The time to have a modernized security training course is now! *Suite 'n Secure* aims to prevent the average user from compromising themselves or the business they work for by giving away any data or information.

Upon signing up for the training, *Suite 'n Secure* will be run at the user's pace, granting the user more time to fully understand the information they are obtaining. With its intuitive, meticulous design, *Suite 'n Secure* will provide an intuitive way for anyone to learn more on the best ways to protect themselves in the world of cybersecurity. *Suite 'n Secure* will train you and quiz you on various topics like Phishing Attacks, Password Complexity, Multi-Factor Authentication (MFA), and SQL Injections. Upon completion of each course a user will receive a certificate of completion.

## **Project Source:**

The inspiration behind this project came from us looking at popular cyber security attacks and how many of those big attacks were caused because no one was educated properly. Also, with all of our group members being in cyber security we felt this was a good way to showcase the knowledge we have learned on the various security subjects.

# **Discussion**

## **Project Objectives/Goals:**

The main goal of *Suite 'n Secure* is to provide an easily accessible learning platform for individuals looking to stay safe and secured on the world wide web. *Suite 'n Secure* is directed towards users of all skill ranges, from the newly hired IT worker to the average mother and father looking to make sure their family stays safe while browsing the web. This goal is achievable through the following list of sub-goals:

- Keep information as simple as possible, while still maintaining concise points
- Provide plenty of notes and sources for those who wish to deepen their knowledge on online security
- Provide quizzes and tests to users in order to let them test the knowledge they have learned
- Offer “certificates of completion” to users who complete all activities in their module(s)

*Suite 'n Secure* is intuitive enough to assist users in maintaining a high level of security on the devices they use in their everyday life, while still being simple enough for the average person to understand and follow.

### Project Scope:

Our team will develop a functional web-based security awareness training course called *Suite 'n Secure*, that can run on a PC/ laptop web browser. The training course will cover some of the top cybersecurity subjects and what the best practices to follow are. It will help millions of end-users and businesses around the world, become more educated on basic cyber topics to keep themselves and their businesses safe.

### Quick Project Timeline:

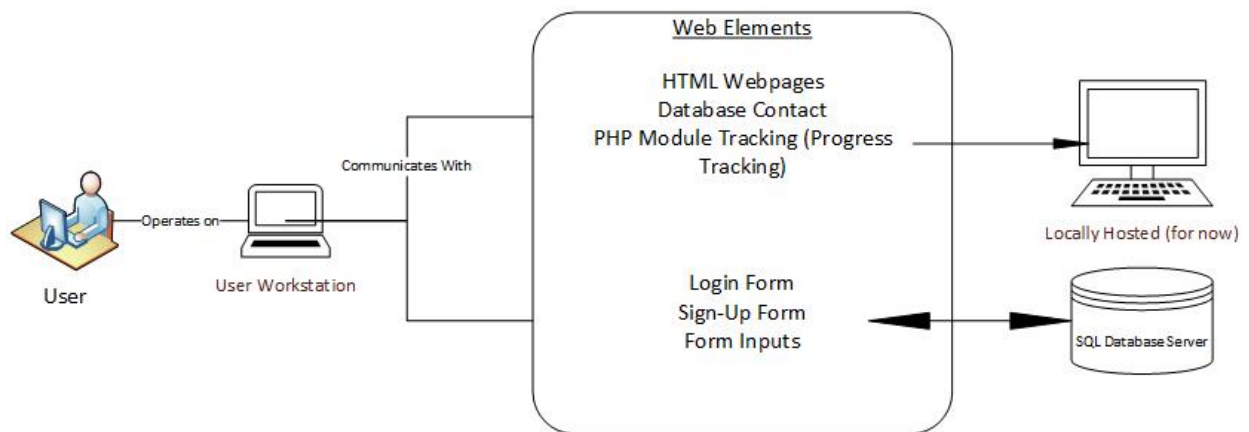
Task #	Task Name	Duration	Start Date	End Date
1	Written Guide - What aspects of a network <i>Suite 'n Secure</i> will scan/probe.	3 weeks	09/20/21	10/11/21
2	Written guide - How the <i>Security Suite</i> will not violate HIPAA/NIST/ISO guidelines at any point <ul style="list-style-type: none"> <li>more specifically, how would this help hospitals/medical organizations as while by utilizing any proprietary information for technical purposes</li> </ul>	2 weeks	10/11/21	12/26/21
3	Written Guide - Provide several real-life technical use cases of how <i>Suite 'n Secure</i> will be functional	2 weeks	01/10/22	01/24/22
4	Application Programming - Gather user, hardware, and software requirements and perform iteration analysis	3 weeks	10/25/21	11/08/21

5	Application Programming - Design documents for technical and user constraint purposes	4 weeks	11/08/21	11/29/21
6	Application Programming - Validate test results and perform user integration tests	7 weeks	01/10/22	04/07/22
7	PROJECT CHANGE POINT - Project has been changed to a web security training platform - Use what we have, and modify the website to better fit our new project scope	1 weeks	02/06/22	02/13/22
8	Testing - Verify quizzes work, module assignments work, database connection works	2 weeks	02/13/22	02/27/22
9	*If time permits* Add more modules for studying, reviewing, and testing. Tweak aesthetics to better fit our new project scope	2 weeks	02/27/22	03/13/22
10	Present the project to the class and at the IT Expo	4 weeks	03/13/22	04/12/22

## Technologies Used:

Upon completion of a written guide of *Suite 'n Secure*, a hard-coded version of the software will be created using a combination of several coding languages, including: HTML, CSS, JavaScript, SQL, and PHP. A portable laptop system will be used to provide a demonstration of training on best practices for the various cybersecurity subjects provided.

## Technical Architecture Diagram:



**User Personas:**

*Table 1 User Persona Table*

User Persona: 1	
	Title Tier 1 Backend Developer
	Name Greg Henderson
	Age 32
	Gender Male
Behavior	Cares greatly for details, want to know what the exact issues are, where they are, and how they can be solved. Willing to work with others on his team in order to solve a common goal.
Pain	Greg is trying to perform development work for his friend’s startup company, but the website keeps getting data breaches. He is looking for a way to learn about what breaches he could be experiencing, as well as how the breaches occur so he can learn how to prevent them in the future.
Needs & Goals	Greg needs an application that can teach him about possible vulnerabilities that he is experiencing with the startup company’s website.

User Persona: 2	
	Title Stay-at-home mom
	Name Sally Ride
	Age 45
	Gender Female
Behavior	Impatient and doesn't care too much for the details; she just wants to see what she needs to know, and a brief description for why she needs to know it. She's a busy mom, and wants to make sure her and her children are staying safe and secure while doing activities online.
Pain	Her children are constantly installing viruses on their family-shared computer, tablet, and on her and her husband's smartphones.
Needs & Goals	Sally needs a simple way to learn about the dangers that come with not securing personal devices, and the possible dangers that arise from browsing the web online.

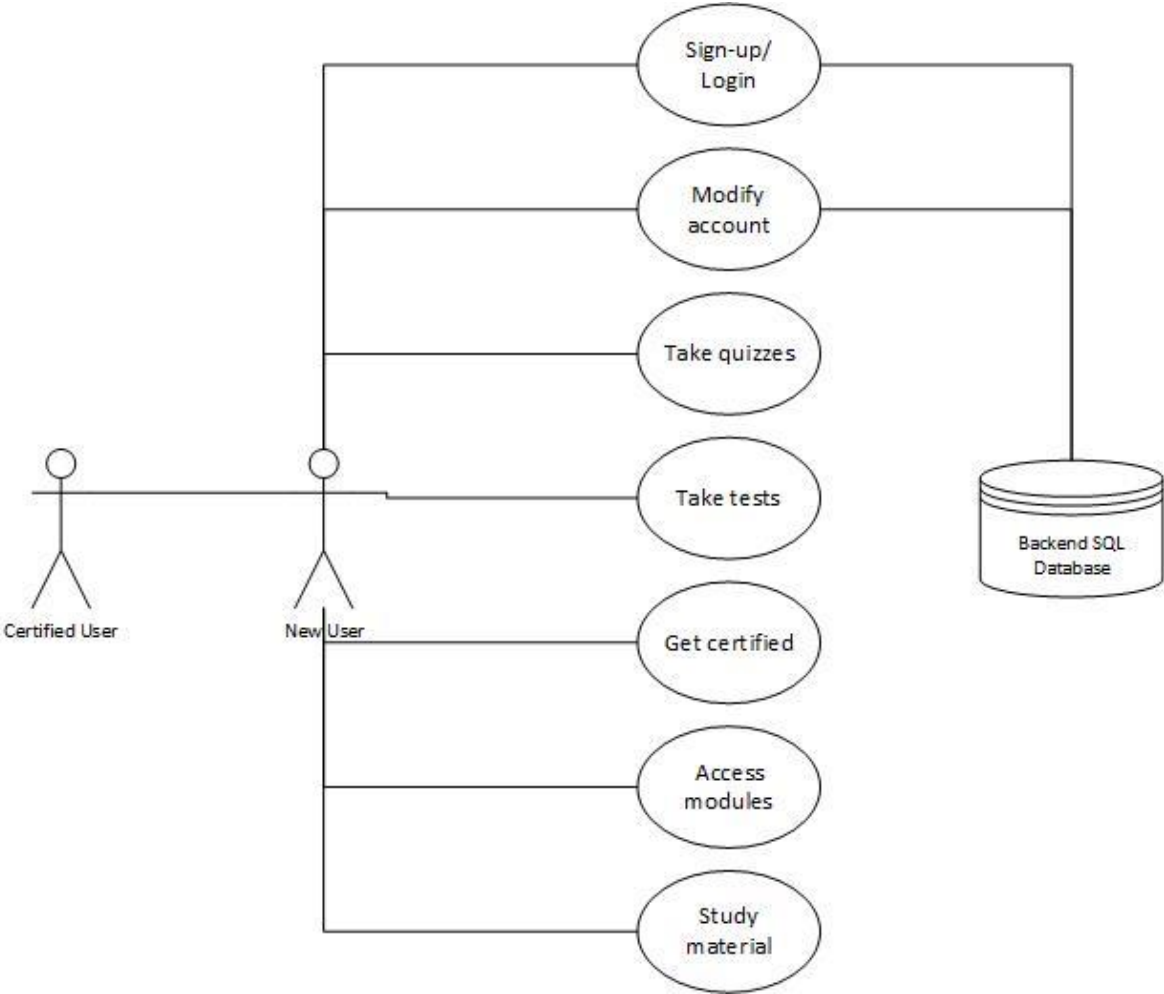
## Use Cases:

### Greg Henderson:

Use Case ID	28
Use Case Name	IT Support Knowledge Base
End Objective	Enhance the security for the website for him and his friend's startup company, as well as learn about the most frequent malicious activities performed on both secured and unsecured websites.
User/Actor	Greg Henderson - Tier 1 Developer
Trigger	The startup company website that Greg helps manage keeps getting its database breached due to vulnerabilities that Greg doesn't know of.
Frequency of Use	Anytime Greg, or any other Tier 1 IT support/developer needs to learn about website vulnerabilities.
Preconditions	Greg has some background in IT thanks to several classes he took in community college, but he doesn't have the experience, yet. He is familiar with how computers work, and he knows about HTML, CSS, and JavaScript for making and managing websites. Greg also wants to find out what's wrong with the website in a timely manner. He doesn't have time to take an entire semester's worth of classes, so he's looking for something simpler that will aid in his comprehension of web security.
Basic Flow	Greg wants to figure out what's wrong with the website in a timely manner. He creates an account for <i>Suite 'n Secure</i> , then immediately starts browsing through the modules to get a better understanding of what security training <i>Suite 'n Secure</i> has to offer. After getting a general idea, he starts studying at Module 1, then works his way through each additional module's study material until he feels he has a better understanding of the vulnerabilities in his startup company's website.

Alternate Flow	Greg decides to delve deeper in his understanding of web security, so he works through each module, module quiz, and final test in order to become certified in understanding each module's web security topic.
Postconditions	After getting certified, Greg has the knowledge and know-how to find and fix the vulnerabilities spread through his startup company's website. He is able to check over every bit of code in each of the website files and correct the vulnerabilities that were letting hackers easily swipe customer data from the company's database.

**Use Case Diagram:**



## Testing Plan:

### Overview

In this testing plan, you can expect to find a guided overview of what our testing hopes to accomplish, what it hopes to fix, and what our intended results hope to be. Though our security training is not 100% dynamic and functional, we still want to show that it is able to give an intuitive and smooth learning experience as well as quiz you on the knowledge you acquired from the training. We want to ensure it is able to see different user profiles when they are created and give users a personalized experience. As a result of being successfully trained on the various cyber security topics, we want to reward users with a certificate they can put on a resume or LinkedIn.

### Methodology

We will conduct two types of testing: functional testing & non-functional testing. Within functional testing, we will take a look at how well the database will be integrated with the login and sign-up pages as well as how well the website keeps track of course progress. Nonfunctional testing will primarily be in regard to usability and how well the information is presented in order to provide the user with an intuitive learning environment. Given that our product is a security training tool, we will focus on making the learning process easy for users of any occupation or general lifestyle.

### Scope

The features we will be testing are logging in and setting up an account that will then populate a database and getting started on *Suite 'n Secure*, configuring a way to keep track of progress when completing a quiz or reading, and the automation of a certificate creation upon completing the training *Suite 'n Secure* provides.

There are two main use cases that we will be testing:

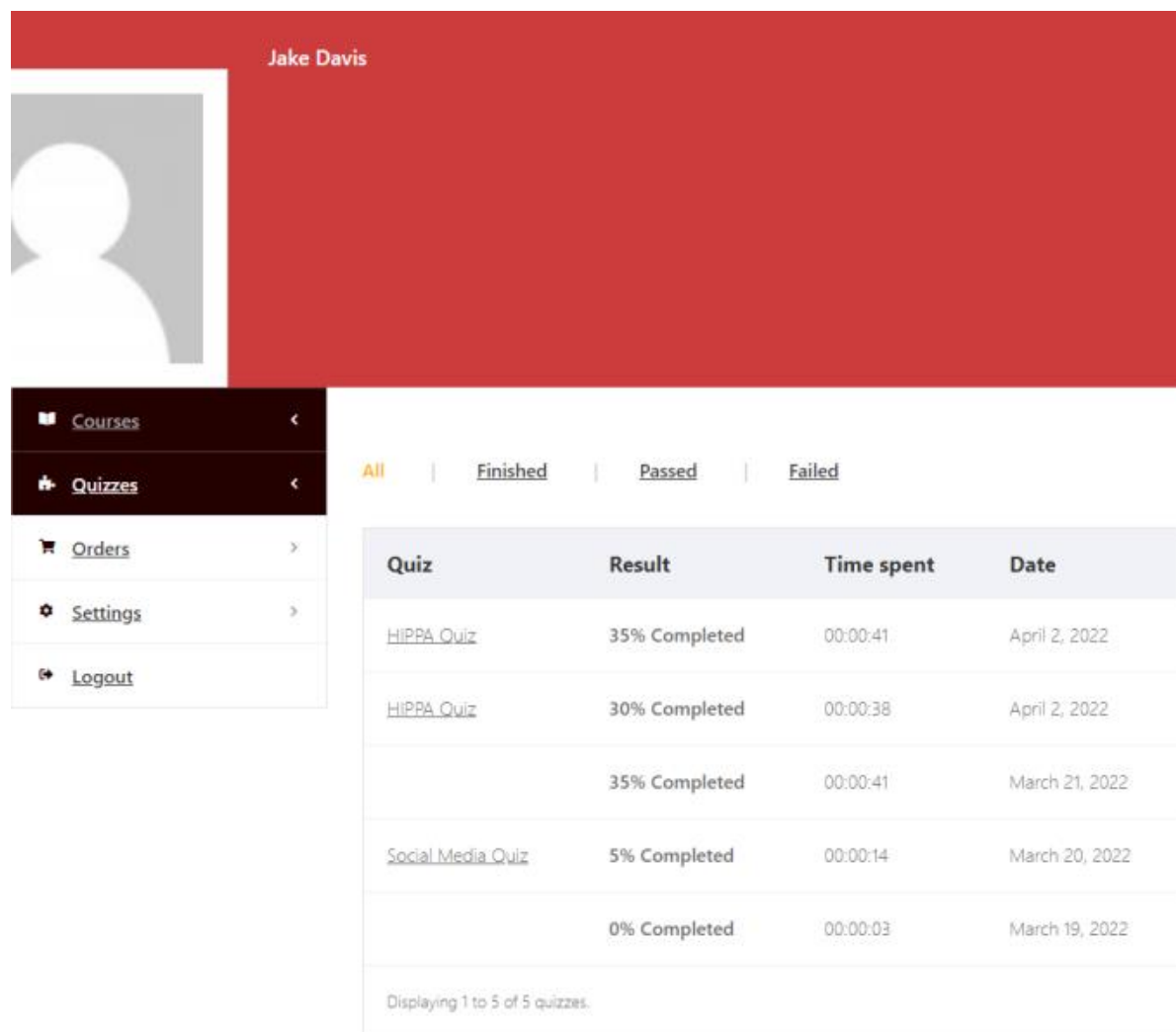
1. Having a login and sign-up page that points to an active database holding all of *Suite 'n Secure*'s users credentials.
2. Having a personalized user experience that a user can complete training at their own pace and at the end of training can have an auto generated certificate.

## Objectives

Our testing strategy is to ensure that *Suite 'n Secure* is able to intuitively and efficiently train users of all kinds on various cyber security topics that aren't filled with computer jargon and is easy to read.

- Detailed use case needs to be successful
- Overview use case needs to be successful
- User access should not be dependent on IT user role
- Certificates need to generate without errors
- Quizzes should reflect the information that was delivered in the learning modules
- Training modules should give a decent amount of information

## Testing Results



The screenshot shows a user profile for Jake Davis. The profile includes a placeholder for a profile picture and a navigation menu with options: Courses, Quizzes, Orders, Settings, and Logout. The Quizzes section is active, displaying a list of quizzes with columns for Quiz, Result, Time spent, and Date. The quizzes listed are:

Quiz	Result	Time spent	Date
<a href="#">HIPPA_Quiz</a>	35% Completed	00:00:41	April 2, 2022
<a href="#">HIPPA_Quiz</a>	30% Completed	00:00:38	April 2, 2022
	35% Completed	00:00:41	March 21, 2022
<a href="#">Social Media Quiz</a>	5% Completed	00:00:14	March 20, 2022
	0% Completed	00:00:03	March 19, 2022

Displaying 1 to 5 of 5 quizzes.

## Change Management Plan:

Our change method Plan will be negotiated amongst the group when making decisions about adding, removing, or changing anything we have on our project. We have outlined a prototype to be done for the GUI this semester, so everything right now is a free game in terms of figuring out the best UI and interface for our final GUI. After this semester though, changes will have to be approved by everyone including our advisor Tyler Hopperton and must meet an objective that the prior feature is failing to address. We will always weigh the pros and cons when considering any changes after this semester and thus, a meeting, review, and final decision will be made by committee.

## Budget:

Our plan is to release the Suite 'n Secure educational courses as a free service, hosted publicly for users and organizations that are looking to better understand everyday cyber threats.

With this in mind, we do not aim to monetize it. Although someday we might have small banner ads on the sides of the pages, pointing to trusted software. This would be implemented in order to pay for the cost of hosting the site itself.

## Problems Encountered and Analysis of Problems Solved:

Over the course of the Fall semester, our group faced numerous challenges and problems during our initial ideation and implementation process for Suite 'n Secure. We have discovered that while our understanding of technologies regarding infrastructure and security are strong, our software engineering skills leave something to be desired. We are a team solely composed of cybersecurity majors and this has led to a focus on creating a security suite. We enjoy the work of our field and want to implement an interface that contributes to the security of a vulnerable sector, in this case the healthcare sector. The problems that we had to overcome were how we would create an initial demo that showed the future potential of our ideas while keeping in mind that we may struggle to implement features that require a large amount of coding knowledge. In its current state, our site runs on a bootstrapper program that, while not entirely dynamic, conveys the ideas that we aim to implement in the Spring semester.

Another issue was how we planned to “demo” our interface as it does not currently have all of the functions that we will be adding in future iterations. We plan to use virtual

machines and a hosted website in order to demo our software on a “live” network. We have been having issues linking these ideas together, but have plans to use Azure and a properly hosted and dynamic site to showcase the technologies in our final product when it comes time for our final presentation at the IT Expo.

After facing these problems and realizing the limitations of our technical knowledge and the time that we have left to complete our project, we have decided as a group to reformat our project into an education platform for cybersecurity, focusing on the average user that has little technical knowledge.

## Conclusion

After a semester of working together, we have discovered the strengths and weaknesses that make up our team. One of the most crucial issues that we have had to overcome is a lack of a software engineer on our team. With this, we had to be creative in what project we could work on that could be created using a template that would be more straightforward to create for a team with weaker programming skills. We are all cybersecurity majors and with that came the common ground of wanting to create something in the information security sector. We developed a workflow of creating new ideas to implement into our Suite ‘n Secure interface for educating the average user on the value of cybersecurity through a variety of educational modules. We have enhanced our communication and research abilities as we planned out what technologies and aspects were crucial in making a program that is made with non-IT users in mind; creating a welcoming environment for those looking to learn, in order to better protect themselves and those around them from cyber threats.

Our aim is to create a website that specializes in training the average user requires careful consideration of the most vital concepts of cybersecurity, how they can be boiled down into easy-to-learn modules, and then reinforcing that knowledge through repetition and quizzing.

## References