Security Education Website
SecEdu

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Abstract

There is an ever-growing issue of poor security education that is prevalent in today's businesses, schools and homes. Coming across technically savvy end-users in the world of technology we live in is rare, and as such, schools, businesses and homes are taking a toll on both PII (Personally Identifiable Information) security and technical costs. Dr. Xuetao Wei and I are working on a solution for this expanding issue. By creating a security education quizzing website, users will be able to educate themselves on the threats that are real in today's world, without the risk of infection or invasion. Using our current system, the users will be able to take a tier-system of quizzes to better improve their education, and leader roles such as teachers and managers can even track the progress on their students and employees for best security education practices, improving business, school and home use of technology and the internet.

Project Description

Create a security education website. First steps will be researching security education websites, find strengths and weaknesses, then come up with a design for the site. Next steps will be to create a basic design for the website and implement the research found on security education. The monetization and customization will be centered around the website being light-weight and versatile, and that the site is not bound to a singular database or server. Any content can be implemented into the website using a database and basic coding.

Project Goals

Create a website to show and deliver up-to-date and relevant security education. This site will be a basis that should cover security education ranging from basic learning (avoiding phishing attempts, securing computers from viruses and malware, etc.) to more advanced tips such as configuring firewalls and setting up admin rights. The span that the webpage covers will ultimately depend on the customer's information. There is a base amount of information that will be submitted to the webpage, but more information may be contributed at the expense of the customer. Management of this project will be provided via Asana (a free project management tool) in order to avoid multiple emails between team members and customers. You can research additional information about this tool at www.asana.com.

User Profile

Application: Security Education Website
Potential Users 1. Home Computer/Internet Users 2. Managers/Business Professionals 3. University/High School Students 4. Security Education Government Users
Software and Interface Experience: HTML with CSS, JavaScript and jQuery. Access via website.
Experience with Similar Applications: Experience accessing the web via browsers and experience with basic computer knowledge (such as Outlook emails, connecting and disconnecting from wireless profiles, using basic computer scanners such as MSE, etc.) The base expertise required is connecting to and browsing the internet.
Task Experience: 1. Sign up/Login to websites 2. Choose best set level to start as (default will be beginner, will suggest the user start out on a level **below** what they believe they are just in case.) 3. Progress and score a passing grade on each quiz taken, until finished.
Frequency of Use: As frequently as required until a goal is met. If no goal is established, or if user wishes to exceed that goal, frequency will be as long as the user wishes or until the final “Advanced” quiz is passed.

Key Interface Design Requirements that the Profile Suggests:

1. Easy to use and get started interface for all users.
2. Main buttons which will include:
    a. Main Page
        i. sign up, login, search, starting basic/medium/advanced quizzes
    b. Sign Up/Login Pages
        i. sign up, login, search
    c. Quiz Pages
        i. grading buttons specifically for the quiz pages, as well as email button for when the quiz is passed
3. Radio/multi-select options for answers.
4. Text boxes for the questions, and any images needed.
5. Grade for quiz after quiz has been taken.

Figure 1, User Profile

Use Case

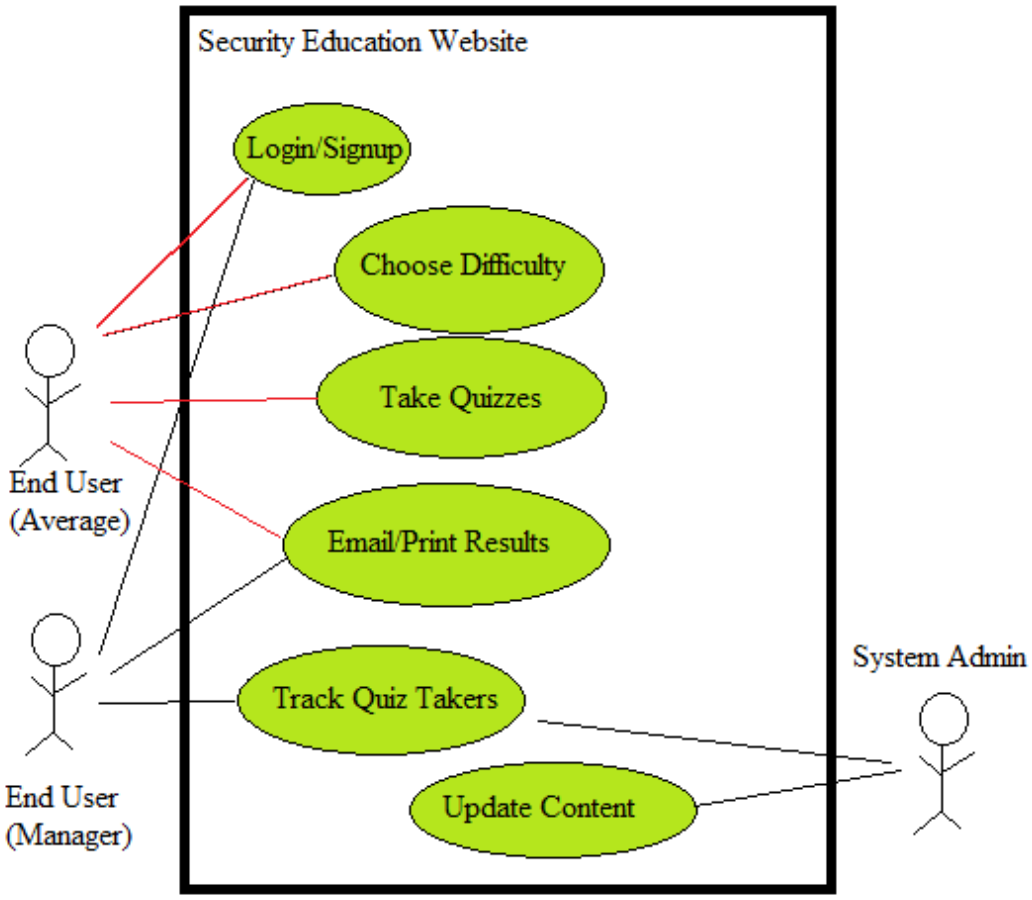

Figure 2, Use Case

Timeline

Security Education Website (SecEdu)

Group:	Brad Pfeiffer					
		Hours/week	Start	Duration	End	Status
Deliverables:						
Deliverable 1: Research		10	21-Sep	2 Weeks	5-Oct	Complete
Deliverable 2: Design		10	5-Oct	2 Weeks	19-Oct	Complete
Deliverable 3: Setup		10	19-Oct	2 Weeks	2-Nov	Complete
Deliverable 4: WebpageDev		10	2-Nov	4 Weeks	30-Nov	Complete
Deliverable 5: Database		10	30-Nov	2 Weeks	14-Dec	Complete
Deliverable 6: Webpage Adv.		10	25-Jan	4 Weeks	22-Feb	Complete
Deliverable 7: Testing		10	22-Feb	2 Weeks	7-Mar	Complete
Deliverable 8: Final		10	7-Mar	4 Weeks	4-Apr	Complete

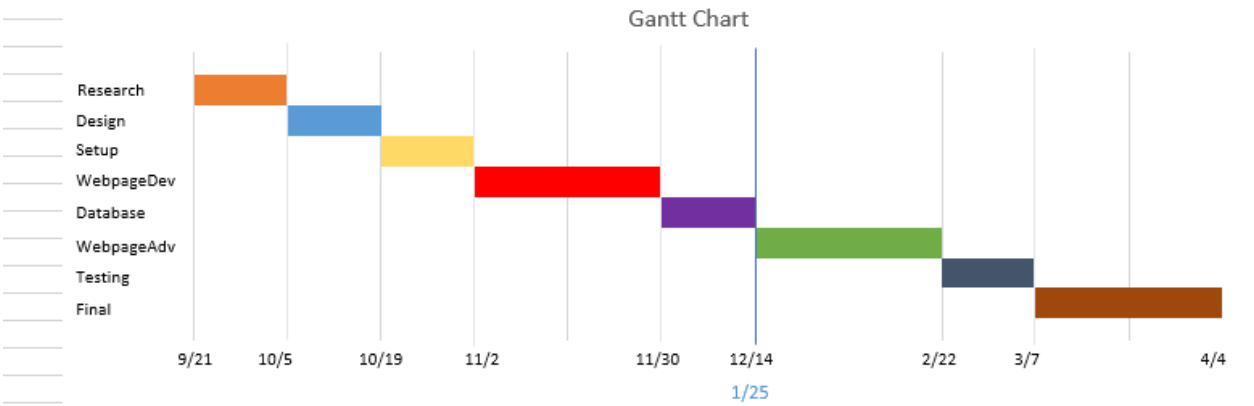

Figure 3, Timeline

Testing Plan

This is the basic plan for testing the security education website which will initiate at the time indicated on the Gantt chart provided (2/22 through 3/7). There will be multiple sections throughout the testing plan which will ultimately lead up to the final verdict of testing. The sections of the testing plan are as follows:

1. Objective
2. Quick Run-through Criteria
3. Stress Testing Criteria
4. Technical Requirements
5. Pass/Fail Verdict

Objective

The objective of testing the security education website is to ensure that all functions of the website are working as intended, and that each end-user will have a unique experience. The functions of the website will be fully tested during the Stress Testing Criteria and the uniqueness of the end-users' experiences will be testing extensively during that time.

Quick Run-through Criteria

A quick run-through will be conducted at the start of testing. This quick run-through will be a given path for an external non-member in taking a specific quiz, recording their score, then exiting the website. From the main menu, the quick run-through will go to the Quizzes tab, then to a random quiz (chosen by the tester), take the quiz, record the grade via a Print Screen or Snipping Tool, then exiting the website without errors. This is a requirement for a successful test plan.

Stress Testing Criteria

A stress test will be conducted after the Quick Run-through test. This will test all functions of the website, including every quiz (multiple times to ensure no redundancy), registering an account, logging into an account and any in-quiz content (such as quiz answer hyperlinks). The Technical Requirements covers more extensively what is required through the Stress Test. This is a requirement for a successful test plan.

Technical Requirements

Home

- Check all hyperlinks are active and working
- Check all tabs are active and working

Quizzes

- Check all quiz buttons are active and working
- Check all tabs are active and working
- Test **extensively** (minimum of 25 times) each quiz for duplication. If duplication occurs, restart this step in testing until this step is successful. If determined unreachable, more potential questions are required.
- Ensure all quiz grading buttons are active and working
- Ensure quiz grading is correct on all **questions.**

Login

- Check all hyperlinks are active and working
- Check all tabs are active and working
- Ensure account creation correctly creates random number for management accounts

Pass/Fail Verdict

This will determine the final verdict of the testing plan. The requirements for a passing testing plan is that all required content is to passing standards. The requirements for this testing plan are both the Quick Run-through Test and the Stress Test. If these two main tests pass, the testing plan has passed. Improving on the testing plan is possible by exclusively passing each element in the technical requirements section, but is not required for a passing verdict.

Test Table

Test Table			
Group:	Brad Pfeiffer		
	Home	Quizzes	Login
Criteria 1	Pass	Pass	Pass
Criteria 2	Pass	Pass	Pass
Criteria 3	N/A	Pass	Pass
Criteria 4	N/A	Pass	N/A
Criteria 5	N/A	Pass	N/A
Quick Run	Pass	Pass	Pass
Stress Test	Pass	Pass	Pass
OVERALL	Pass	Pass	Pass

Figure 4, Test Table

Proposed Budget

For UC Students (Current Situation)

In a perfect world, the budget would be $0. However, I will attempt to keep the budget below $100.00. Currently, there is no need for a budget (as the programs and tools I am using are all free or provided to me as a student of the university), but if there was an application, program or learning opportunity in order to better deliver this project, the budget can be flexed as such. This budget includes the future portions of the site, including database and server.

For non-UC Students

A minimum of two developers is needed for this, one network based and one webpage based. The averages for all salary-based costs will be compiled from GlassDoor (www.glassdoor.com) which is a well-known and reliable source of information on employers and positions on a national level.

Website Developer - $67,937 (National average)

Network Engineer - $72,040 (National average)

The costs will be based on a server for 1000-person access at any one given time. This cost is obtained from a company named CenterGrid (www.centergrid.com), which is a data center that does server hosting, maintenance and monitoring for clients. These numbers were internally obtained from a technical expert of mine, Karen Pfohl. Costs are relative. This is the bare-bones, basic set up for co-location clients.

Windows Server 2012 - $102.00/month

SQL Server Enterprise - $460.15/month

We will do this cost for a year's work. This years' worth of work will contain one full year of salary for both employees (3 months of planning, 6 months of development, 3 months of

implementation) without post-project support. This will also cover 6 months of server space costs (3 months for setup and 3 months for implementation) with minor post-project support provided by CenterGrid.

1x Website Developer for 1 year - $67,937

1x Network Engineer for 1 year - $72,040

12x Windows Server 2012 per month, for 1 year - $1224.00

12x SQL Server Enterprise per month, for 1 year - $5521.80

Overall Cost Externally: $146,722.80 for the first year + $562.15/month after + any additional work/support needed.

Breakdown

This is a breakdown of the current content, and a look into what the future holds for this project.

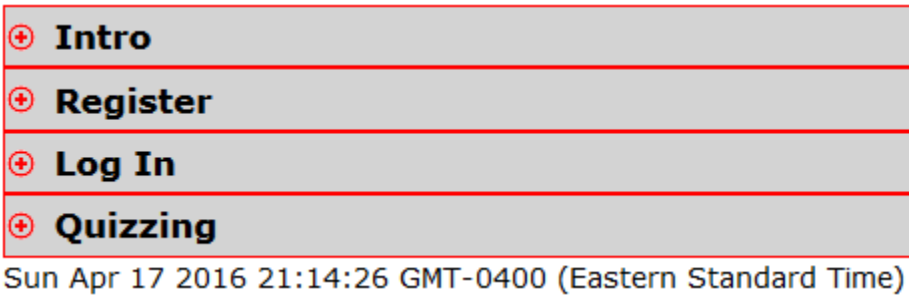

Figure 4, Home Page

The screenshot above, Figure 4, is a screenshot of the home page for the website. It is a basic homepage with a basic navigation to the Intro, Log In, Register, find Quizzes. The Intro section is to start with training material, Register and Log In are obvious functions, and Quizzing shows the quiz selections.

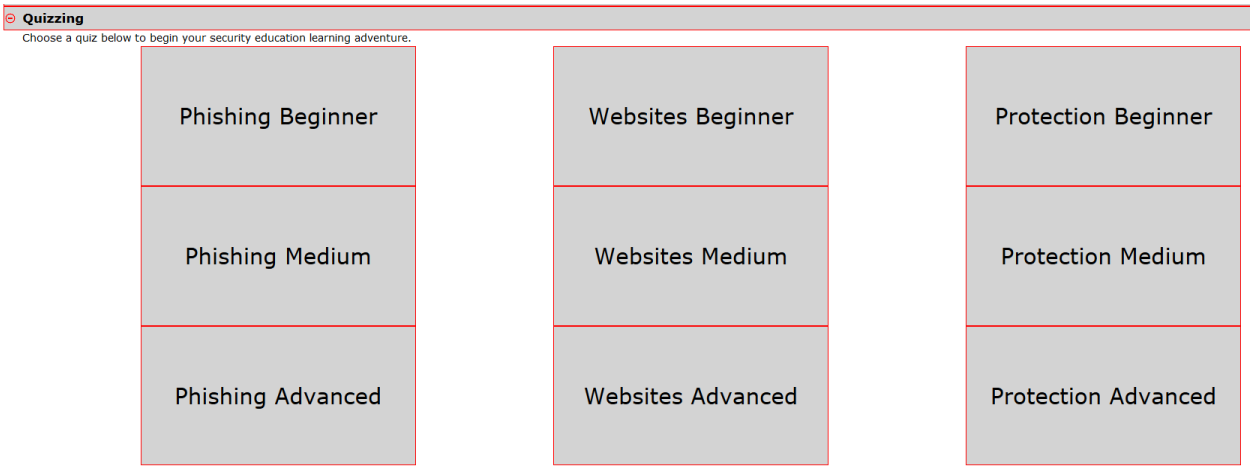

Figure 5, Quizzes Page

Figure 5 is a snapshot of the Quizzing page, where users will take the quizzes. Each quiz section has 10 individual questions, but only displaying 5 per page load. The users will be able to select a difficulty from each topic and take the quiz accordingly.

Future

The future for this project starts with the development of the tracking portion aforementioned in the Abstract. This will be a simple tracking number (provided via a random number generator [RNG] and recorded in the back-end database) that will allow a management account to link to newly created end-user accounts. This will help instructors and managers to train their employees and students in security education. Another aspect to the future success of this project is the credibility of the quiz. This means that a quiz should not be the same for every end-user. The solution to this is to create an abundance of questions for each quiz (for example, each quiz is planned to have 5 interactive questions each). Having more questions in the database than what will appear to end-users will make the quizzes different for each usage. Also, there will be a RNG that will pull the questions that the end-user will see, so that the questions pulled from the pool of questions will be random and in random order.

These changes, coupled with the development of the interactive quizzes, will hold a bright future for this project. The security education website will bring an increase to security education in schools, businesses and homes across the board.

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