CSC302 Phase 1

Team 12

February 5, 2015

Figure 1: Members from left to right, top to bottom: Alexei Darmin, Eric Scott, Lucas Lima, Zhi Hao (David) Chen, Shudmanul Chowdhury, Antonio Carlos Raposo, Caroline Pessoa Caetano, Haris Shoaib

1 Team Introduction

Zhi Hao (David) Chen
I am a 4th year CS student looking to finish at the end of the term. I have some web programming experience from projects I have done for school. In my spare time I enjoy playing all sorts of games with my friends, but recently I am trying to do some side projects for fun.

Alexei Darmin
I am a 4th year CS student aiming to graduate in 2016. I've been a part-time Front-End web developer for two years and my goal is to either become a full stack web developer or to specialize in front-end once I graduate. My time is usually split between school, work, friends and sports. Primarily soccer for the UTSC team, ice skating, and table tennis.

Eric Scott
I am a 4th year CS student completing my final semester. I took last year off to do a 16 month internship at IBM for the WebSphere Commerce team doing product support, tool development, client enablement, and client education. I currently work there part time during the school year, returning for full time work starting May 1st. In my spare time, I enjoy playing board games, hockey, and going snowboarding.

Lucas Lima
I am an international CS student. I have some experience in Web Development and I have written and collaborated on articles for IBM Developer Works (Article 1 , Article 2, Article 3), having one of them in the Top 15 Bluemix tutorials in 2014. I have also presented in some Toronto SMAC meetups. In my spare

time I like playing drums and occasionally engaging in some cool tech projects.

Haris Shoaib
I am a 3rd year Computer Science Specialist, hoping to graduate in 2017. Currently, I am also a part-time Jr. Web developer student at OISE. At work, I help my supervisor in completing small, independent tasks, which also helps me learn about the basics of front and back end web development at a manageable pace. Although, at the moment my strengths lie in Front-end Web development, I hope to be proficient in working with the full stack. In my spare time, I like to read tech articles like those on HackerNews, play basketball, or go out with my friends.

Caroline Pessoa Caetano
I am a fourth-year Computer Science student. I have participated in a research project in which I developed a website for the tourism observatory of Sao Paulo. Another interesting project consisted of the design of an educational game during IHC course. During the last summer I worked as Junior Software Developer at Readyportal; one of the projects that I have worked on is available here
Antonio Carlos Raposo
I am a 3rd year Computer Science student. I have participated in a few projects of research back in Brazil, one of them involving Big Data and in Toronto i had an internship at the Big Data University, During my internship my team developed an educational game using the Oculus rift technology in order to gather attention of the youth, you can see it here. One of my hobbies is to play card games like poker, magic the gathering and Hearthstone.

Shudmanul Chowdhury
I'm a 3rd year student pursuing a Specialist in Computer Science, expecting to graduate in 2017 with PEY, and currently working as a TA for CSC148. In the past, I have developed and deployed a couple of Android apps on the Play Store and worked at WSIB as a student software developer. In my spare time, I enjoy developing mobile apps and playing games such as Payday 2 and Valkerye Chronicles. Due to time constraints however, I usually just end up playing Super Nintendo games on my phone during commute.

2 Project Introduction

The project that we have chosen to implement is a computer security tutorial application. This application will allow users to learn computer security principles then test their understanding through exercises while keeping them informed about computer security news. We chose this project because, although there are many applications for learning about general programming, there are few places to effectively learn about both how to break code and also how to make code secure to the aforementioned hack. The places that do exist for learning computer security suffer from issues such as poor UI, poor tutorial/exercise categorization, poor/minimal explanation of computer security principles or attack techniques, etc. To decide on a project, we each first came up with a possible project to implement. Once we had a selection of possible projects, we reviewed each possible project and decided how feasible it would be based on factors

such as knowledge of the project's subject matter, personal interest, amount of content already available on subject matter, etc. After taking these factors into consideration, as well as the professor deciding the security application being the most interesting, we decided to implement the computer security tutorial application.

3 Persona

Persona 1: User with no computer security experience

- wants to get introductory information about computer security field
- wants to be able to learn simple security principles
- wants to eventually learn about more advanced computer security topics

Figure 2: Larry Cage (23 years old, little to no computer security experience)

Larry is a 4th year undergraduate Computer Science student at the University of Toronto. He is a hardworking student and also a a TA for the web programming course taught at his school. Students find him helpful in tutorials, as he is well informed about the topics taught in the course. He loves to learn and consistently expand his knowledge of different areas in CS. In his spare time, he likes to read interesting articles posted on HackerNews and advice posted by industry professionals on Quora about working in the software industry. Larry will be graduating this summer and will start his new full time position as a Full Stack Web Developer for *FrontierWeb* Ltd. He hopes to be a great fit for the job, but feels the need to improve his limited understanding of security vulnerabilities, which as suggested by reputable bloggers, is crucial for any professional development position.

Persona 2: User with computer security experience

- wants to learn more advanced computer security topics
- wants to keep up-to-date on computer security news
- wants to be able to refresh their knowledge on particular topics

Figure 3: Sergina Brick (32 years old, user with computer security experience)

- wants to take advantage of their knowledge to solve problems that require multiple skills or areas of expertise in security

Sergina Brick (32 years old, user with computer security experience)
Sergina is a software test specialist who has worked at *Generic Anti-Virus Software*®inc. for the past five years. She often runs automated system and network penetration tests at work and is well informed on various malware detection methods. She was also an avid member of the *Grey-Hat Hacking Society* at the University of Toronto, a club which now consults her every once in a while. In her spare time, Sergina often enjoys exercising and keeping in shape, both physically and mentally. She also enjoys gaming every now and then, and her favorite game series' include *Fallout, Mass Effect* and *Bioshock*, all of which include nifty "hacking" puzzles within each game. Other than games, Sergina is often seen breaking programs she writes and finding security flaws in software for fun, however, she wishes that she could somehow interactively learn and stay updated on security topics while having fun at the same time.

4 User Stories

User Story Scoring

- 1: Fundamental feature. Without this feature, our product has no value to our users.

- 2: Valuable feature. This feature would be great to have in our product, but is not a fundamental feature.

- 3: Nice to have feature. This feature would be nice to have in the product, if possible, but not a problem if the product doesn't have it.

4.1 Rank 1 User Stories

- **Master** User Story: As a user with no computer security experience, I want to be able to view tutorials on particular computer security topics so I can learn about the topics..
- **Master** User Story: As a user with no computer security experience, I want to be able to practice a computer security topics through exercises so that I can test my understanding of the topic.
- **Master** User Story As a user with computer security experience, I want to be able to practice fixing vulnerabilities so that I know how to deal with these vulnerabilities on my own applications.

Following user stories dependent on above 3 user stories

- User Story: As a user with computer security experience, I want to review SQL Injection exploits so that I understand how they work and how to prevent this exploit.
- User Story: As a user with computer security experience, I want to practice using SQL Injection exploits so that I can test my understanding.
- User Story: As a user with computer security experience, I want to review Cross Site Scripting exploits so that I understand how they work and how to prevent this exploit.
- User Story: As a user with computer security experience, I want to practice using Cross Site Scripting exploits so that I can test my understanding.
- User Story: As a user with computer security experience, I want to review Session exploits so that I understand how they work and how to prevent this exploit.
- User Story: As a user with computer security experience, I want to practice using Session exploits so that I can test my understanding.
- User Story: As a user with computer security experience, I want to review Cryptography so that I understand how it works.
- User Story: As a user with computer security experience, I want to practice using Cryptography so that I can test my understanding. **End of dependent user stories**
- User Story: As a user with no computer security experience, I want to learn basic computer security principles so that I am better prepared to learn about more advanced topics.

4.2 Rank 2 User Stories

- User Story: As a user with no computer security experience, I want a guide that explains how to use the site so I can become familiar with the site.
- User Story: As a user with no computer security experience, I want incremental difficulty for the exercises, so that I can feel a sense of increasing accomplishment.
- User Story: As a user with no computer security experience, I want to read news about the computer security field so that I can become familiar with the field and recent events.
- User Story: As a user with computer security experience, I want to read news about the computer security field so that I can keep me up-to-date and to learn the application of advanced topics.
- User Story: As a user with no computer security experience, I want to be able to have an account so that I can track my progress and share it with my friends.
- User Story: As a user with computer security experience, I want to be able to have an account so that I can compare my progress with other users and my friends.
- User Story: As a user with no computer security experience, I want to have a list of tutorials/exercises I have completed so that I can keep track of my progress.
- User Story: As a user with computer security experience, I want to have a list of tutorials/exercises I have completed so that I can see what I have left to learn.

4.3 Rank 3 User Stories

- User Story: As a user with no computer security experience, I want to be able to chat with other users so I can get assistance with tutorials or exercises.
- User Story: As a user with computer security experience, I want to be able to skip tutorials/exercises, so that I don't have to complete topics I am already familiar with.

5 Minimum Value Product (MVP)

This application will be the go-to place for computer security related tutorials and challenges. The process is simple yet logical. First, you have access to tutorials where we arm you with the tools and knowledge necessary to break software in a variety of ways. Next, you are given access to a 'test range' where you will have the ability to hone and practice these newly learned skills. Finally, you are able to graduate from the "test range" and enter our real-world challenges. These will be complex challenges with minimal help available.

You will be responsible for sifting through an application's code, finding the weakness and either abusing it or fixing it depending on the challenge. Your achievements (completed tutorials, exercises and challenges) will be tracked and recorded on your profile, which you can view at any time as an archive of what you've achieved.

Most other apps fail to effectively provide the comprehensive knowledge required to learn computer security while also allowing users to practice their skills. These applications either do not provide you with the ability to practice, or they do not provide sufficient information to complete their challenges. Furthermore, they usually only teach you how to hack but not how to fix the aforementioned hack. Computer security is a large and complex field and one of the challenges we look forward to overcoming with this application is structuring it in a way that no other security-guide app has ever been done. We have three stages of tutorials, exercises, and challenges that teach users about the vulnerability, how to exploit the vulnerability, and also how to fix the vulnerability in a quick and effective manner. Lastly, our application will provide all the knowledge required to complete challenges so you will not need to access third party resources to complete them.

6 Release Planning

Which user stories are you planning to implement for your first release?

- **Master User Story:** As a user with no computer security experience, I want to be able to view tutorials on particular computer security topics so I can learn about the topics.
- **Master User Story:** As a user with no computer security experience, I want to be able to practice a computer security topic through exercises so that I can test my understanding of the topic.
- **Master User Story:** As a user with computer security experience, I want to be able to practice fixing vulnerabilities so that I know how to deal with these vulnerabilities on my own applications.
- **User Story:** As a user with computer security experience, I want to review SQL Injection exploits so that I understand how they work and how to prevent this exploit.
- **User Story:** As a user with computer security experience, I want to practice using SQL Injection exploits so that I can test my understanding.

Mention 3 user stories/features/components that you decided to exclude from your first release, and explain why you decided to postpone implementing them.

- **User Story:** As a user with no computer security experience, I want incremental difficulty for the exercises, so that I can feel a sense of increasing accomplishment.

- **User Story:** As a user with no computer security experience, I want to be able to have an account so that I can track my progress and share it with my friends.
- **User Story:** As a user with computer security experience, I want to have a list of tutorials/exercises I have completed so that I can see what I have left to learn.

Even though the above features/user stories add value to our product they are not essential features, reason why they can be implemented in further releases.

Which user stories are you planning to implement in the first iteration?

- **Master User Story:** As a user with no computer security experience, I want to be able to view tutorials on particular computer security topics so I can learn about the topics.
- **User Story:** As a user with computer security experience, I want to review SQL Injection exploits so that I understand how they work and how to prevent this exploit.

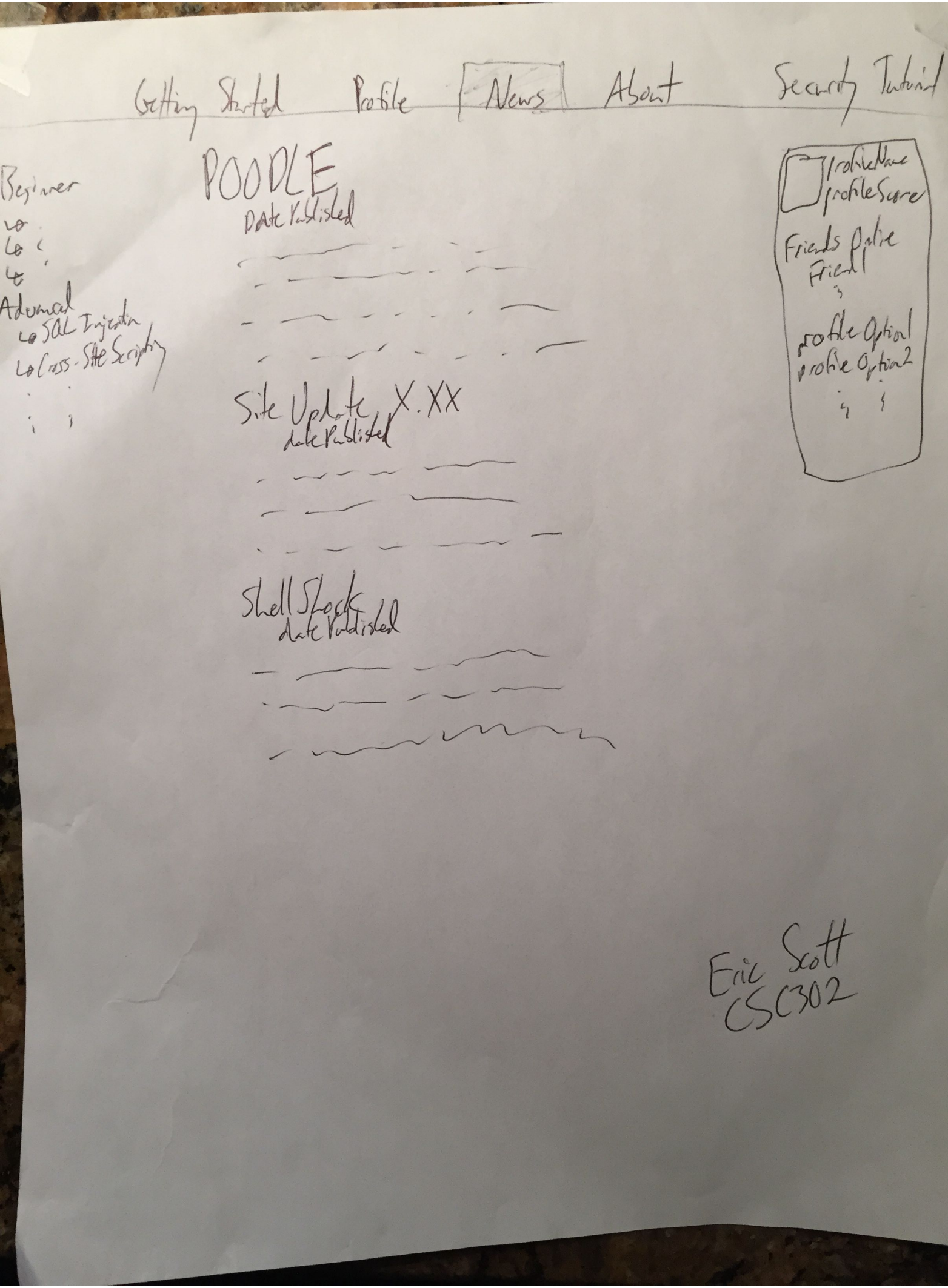
7 CRC cards

On next page

User	
login logout edit user profile password score shareTutorialProgress compareTutorialProgress Provide a list of tutorials that the user has started working on.	Tutorial

Tutorial	
status score subject Provide a list of exercises in a tutorial.	Exercise User

Exercise	
description solProvidedByUser solution score status tips levelOfDifficulty Check if the answer provided by the user is correct.	Tutorial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Getting Started Profile News About Security Tutorial

Advanced

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Advanced
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  ↳ Level 0
  ↳ Level 1
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↳ Cross-Site Scripting
↳ Session Hijacking
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SQL Injection - Level 0

Level Goal

Background knowledge required

Resources

Begin

Profile Name
Profile Score

Friends Online
Friend 1
Friend 2
Friend 3
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Profile Option 1
Profile Option 2
Profile Option 3

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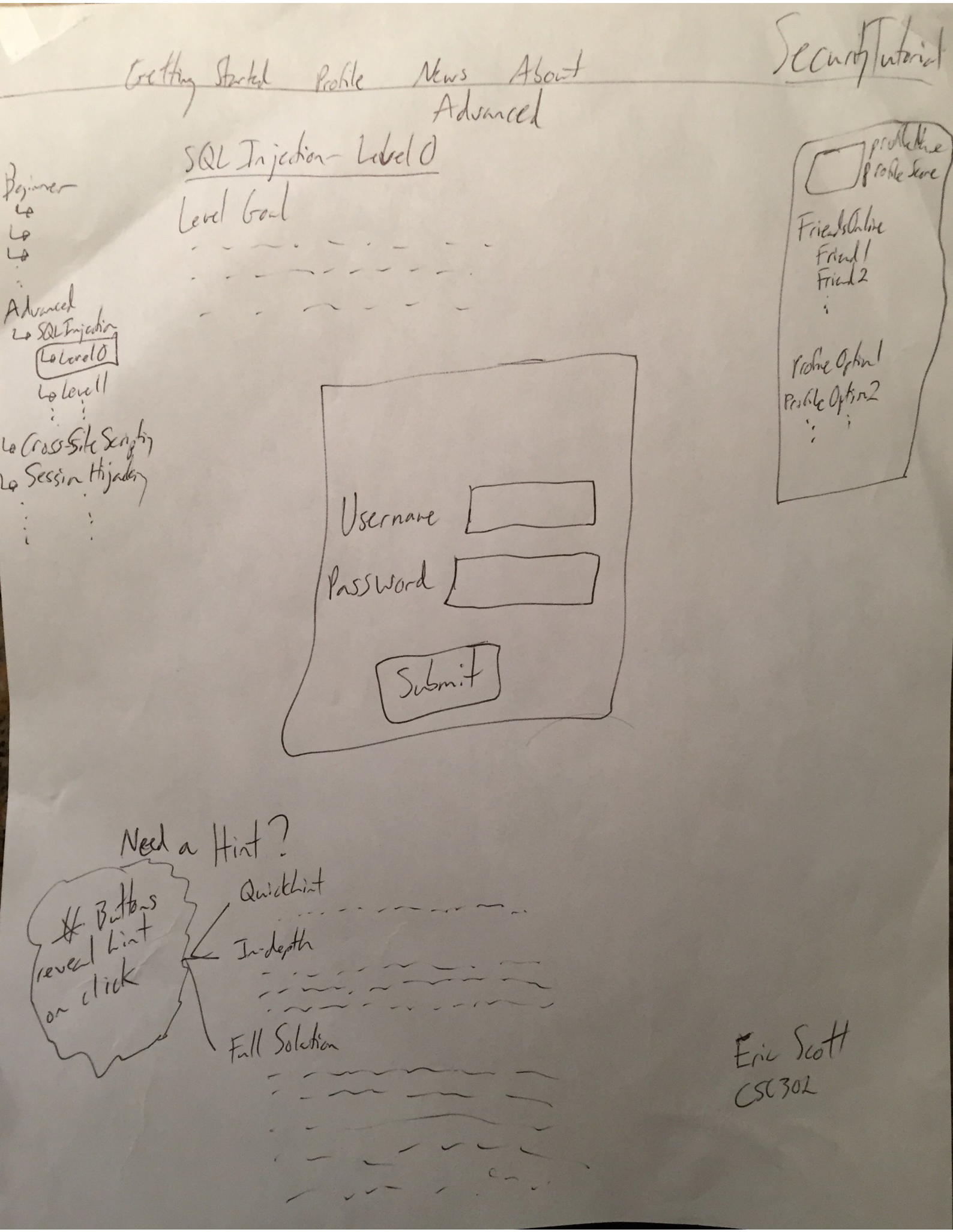
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SQL Injection - Level 0
Level Goal
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Profile Option 2
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In-depth
Full Solution
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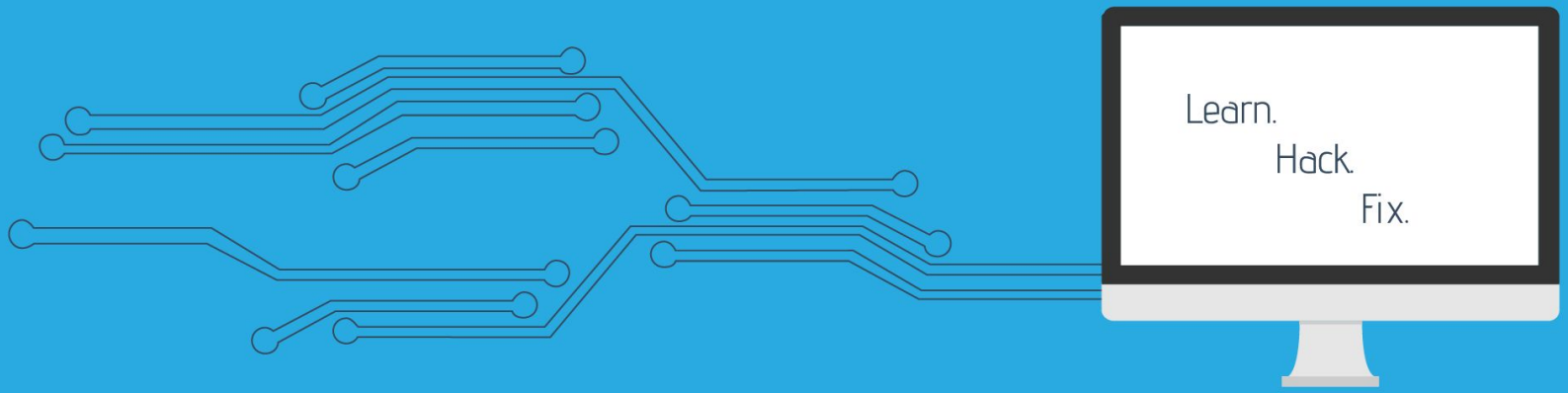
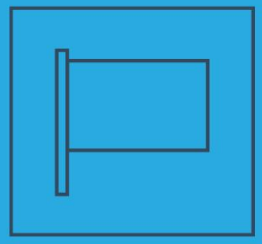
SIGN UP LOGIN



TUTORIALS



CHALLENGES

NEWS

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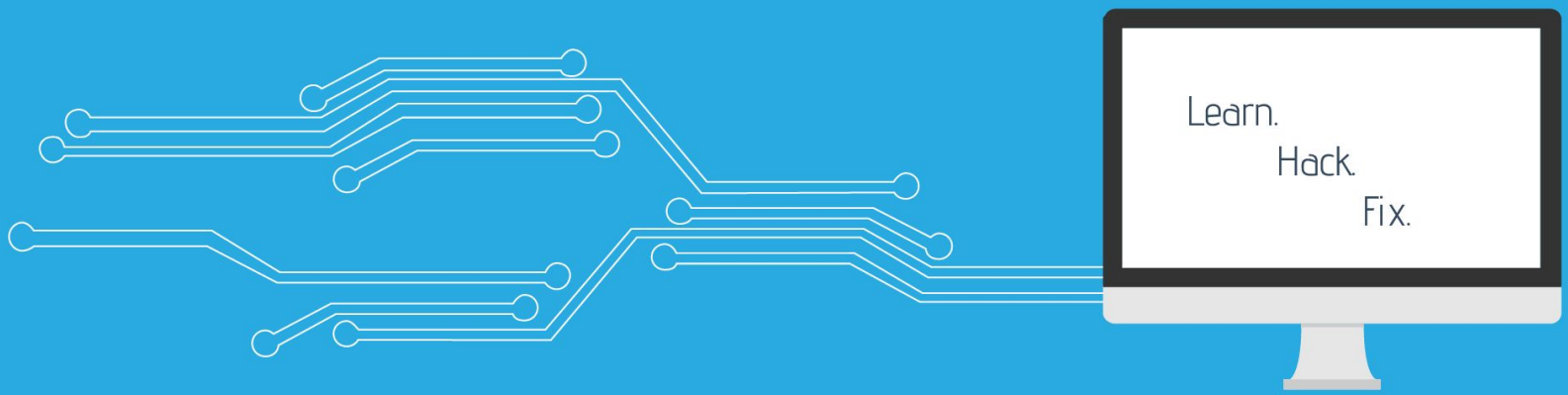
SIGN UP LOGIN



TUTORIALS

CHALLENGES

NEWS