

Team: HACK&/

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Abstract:

The HACK&/ website will help students learn about cybersecurity, while also helping Admin “teachers” provide material for people to access. Different cybersecurity topics will be taught, and challenges will be provided to practice hacking skills. HACK&/ will be a backdoor for users to have a fun learning experience at their own pace.

Introduction:

Rensselaer Polytechnic Institute has an prodigious club called RPISEC, which helps students learn about and utilize cybersecurity. The club is made of very experienced members who help other students get into white hat hacking. However, there is a level of experience students need in order to benefit and learn from RPISEC. Therefore, RPISEC made a secondary club, IntroSecC, in order to lead inexperienced students into the cybersecurity world. RPISEC has made substantial progress in helping those novice hackers into the club, however there is still a steep learning curve.

It is hard to find the right tools, documentation, and tricks to start learning about cyber security, which is why HACK&/ is making a website to give these resources to students. HACK&/’s objective is to give users a website where: they can learn about multiple cybersecurity topics in a tutorial, answer questions about what they learned to cement what they’ve read, and then practice their newfound skills in some challenges. The challenges will have scores so that users can see their progress in the challenges by seeing how many points they have on a scoreboard page. Admins will be the “teachers” of the website, who can create or delete tutorials and challenges, tailoring the website to create a better learning experience. HACK&/ will help people begin their journey of becoming experienced in the cybersecurity field.

Project Goals:

- Functional registration page for users that doesn’t allow multiple users on one email.
- Non-functional “forgot your password” link. Two Step Verification and password recovery is not an essential part of HACK&/’s website. Could be made functional if time allows.
- Functional user and admin type accounts to log into the website. Only Admin type accounts will be able to access the functional tutorial and challenge creation/deletion pages. These pages will give Admins the ability to upload or remove tutorials or challenges. All other users will have access to learn from the general tutorial pages and challenge pages.
- Users will be able to read the tutorial pdf’s and answer tutorial questions to assess what they learned. They will also be able to solve challenges on the challenge page where each challenge will award a certain amount of points for solving them. Points will be used for a functional ranking leaderboard page that displays the top ten scores, as well as the individual user’s score and placement.

- Functional fun learning experience, horror movie/hack and slash themed to make the website more memorable. Challenges and tutorials may have some horror movie design to make the website interesting.

Targeted Users:

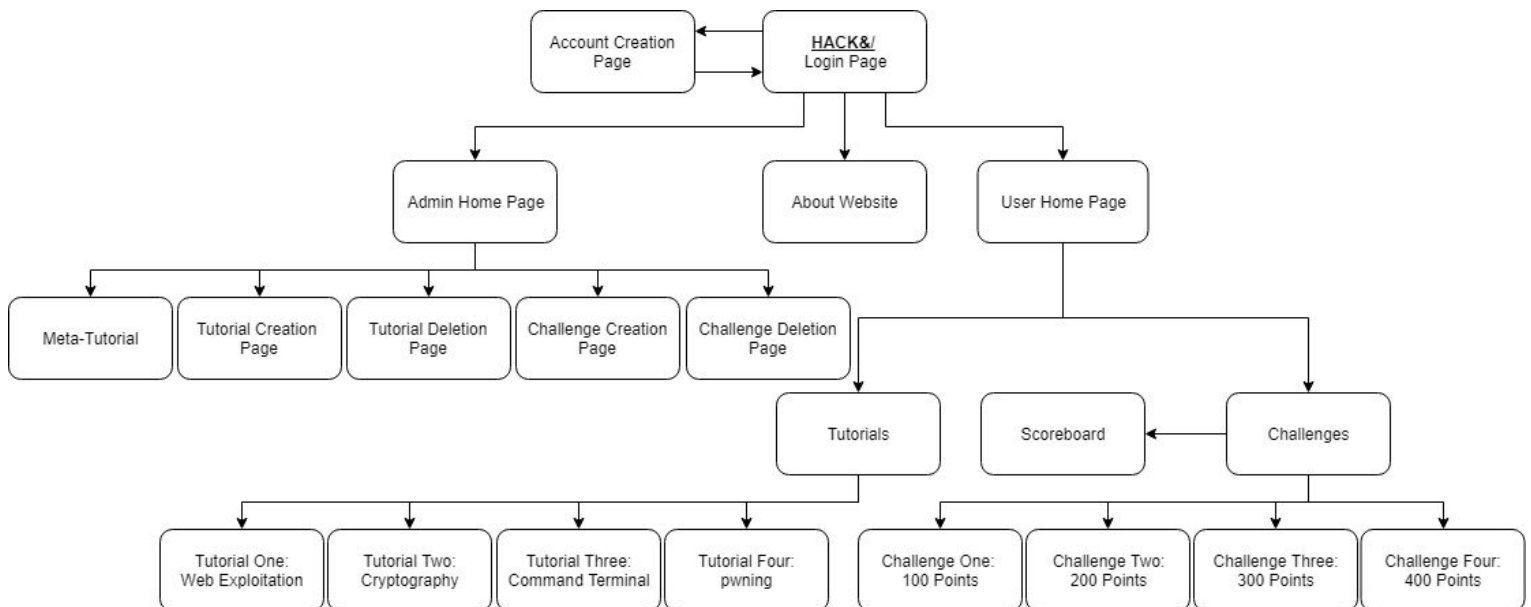
- Emily Butler:
 - Emily is a freshman who is just starting school at RPI and she wants to learn how to hack. However she has little to no knowledge of anything cybersecurity. She has joined IntroSec, but she is lost or wants to go further in-depth into hacking. Emily needs a way to accelerate her learning in intro-cybersecurity.
- Sarah Cuomo:
 - Sarah is a student in her junior year who is interested in hacking and cybersecurity. She has always wanted to try RPISEC, but she was too shy and didn't have enough time to learn in freshman year. Now Sarah feels that it is too late to start, and when she attends one of the meetings she was even more intimidated. She needs something that can make her more comfortable with cybersecurity.
- Jason Voorhees:
 - Jason is a person unaffiliated with RPI who has some spare time and is interested in hacking. However, the tutorials found online are either too sophisticated or made hacking seem too complicated. He needs a resource that can tell him what to start learning, and to ease him into the world of cybersecurity.
- Freddy Krueger:
 - Fred is a student who wants to join IntroSec and start learning about cybersecurity in the second semester. However, traditionally IntroSec doesn't continue into the spring semester of RPI, so his only option is to join RPISEC. RPISEC though, is already crunching through the cybersecurity material, leaving Fred to dream of the day he can start hacking. He needs a way to catch up to those already in RPISEC.

Technologies and Compatibility:

- Desktop Google Chrome, Firefox, and Safari compatibility.
- HTML5 and CSS3 will be used to create the web pages. These will be utilized so that the website comes out as a fun, horror movie/hack and slash themed movie. HACK&/ will use and make the web pages compatible with different computer resolutions. This application is not meant for use on phones.

- JavaScript will be used for transitional displays on the same webpage, and to add visual effects. The specific JavaScript libraries are to be determined. May use ajax and jquery to dynamically create our web pages.
- PHP 7.2.3 and MySQL 10.1.31 will be used to maintain and access the database where HACK&/ will store all users accounts, admin accounts, challenges, scores, and tutorials. PHP will be used so the server side can authenticate user login and validate user input when users try to complete challenges. It will also be used for database connectivity to upload, delete, or access tutorials and challenges. We may have time to secure the website by preventing SQL injections, hashing and seeding passwords, validating input lengths are within reasonable bounds, ensuring the admin doesn't create a tutorial more than five pages, keeping the challenge flags obscure, and watching out for certain input characters on the back end utilizing PHP.
- Apache will be used to run HACK&/s development web server while HACK&/ make the website, and keep all of the MySQL databases of the information.
- XAMPP stack will be used because it provides us with Apache, PHP, and MySQL
- Github will be used in order to keep all of the HACK&/ team member's files coordinated and updated.

Site Map:



WireFrame:

hackandslash.rpi/login

Welcome to HACK&/

Please sign in:

Username

Password


[No Account? No Problem!](#)

[About](#)

This wireframe shows a login page for 'hackandslash.rpi/login'. It features a large heading 'Welcome to HACK&/', a sign-in prompt, and two input fields for 'Username' and 'Password'. A link for 'No Account? No Problem!' and an 'About' link are also present.

hackandslash.rpi/createyouraccount

Hack&/



New Username*

Your Email*

Choose a Password*

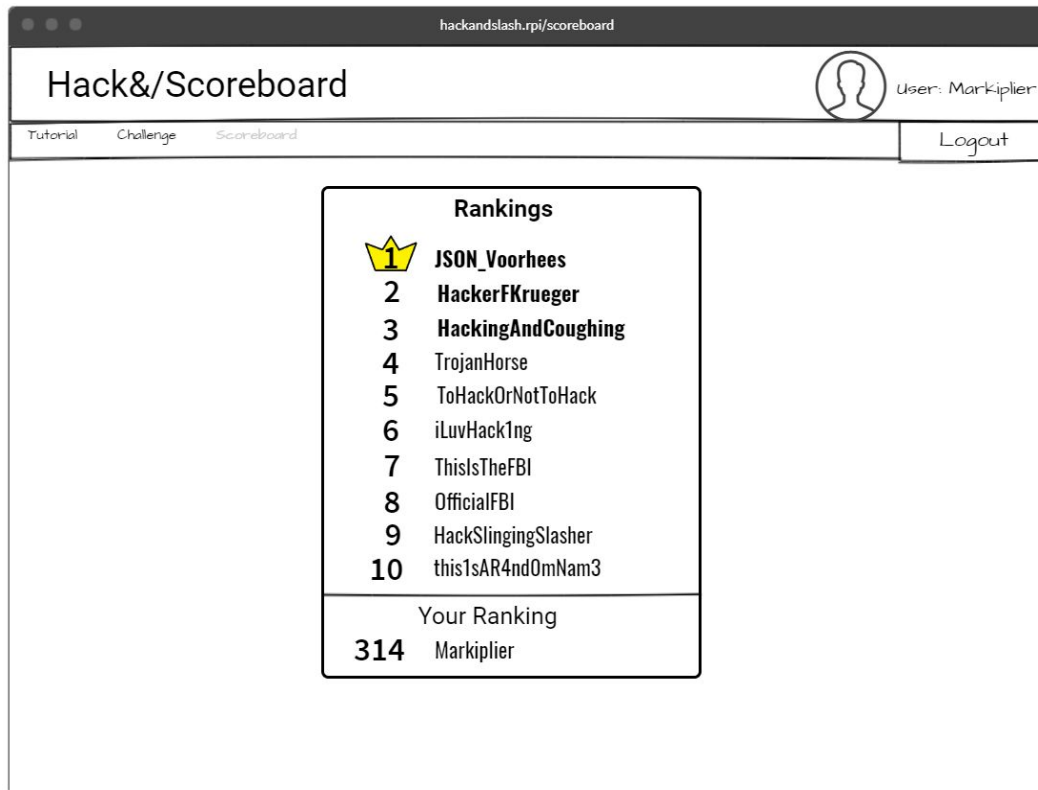
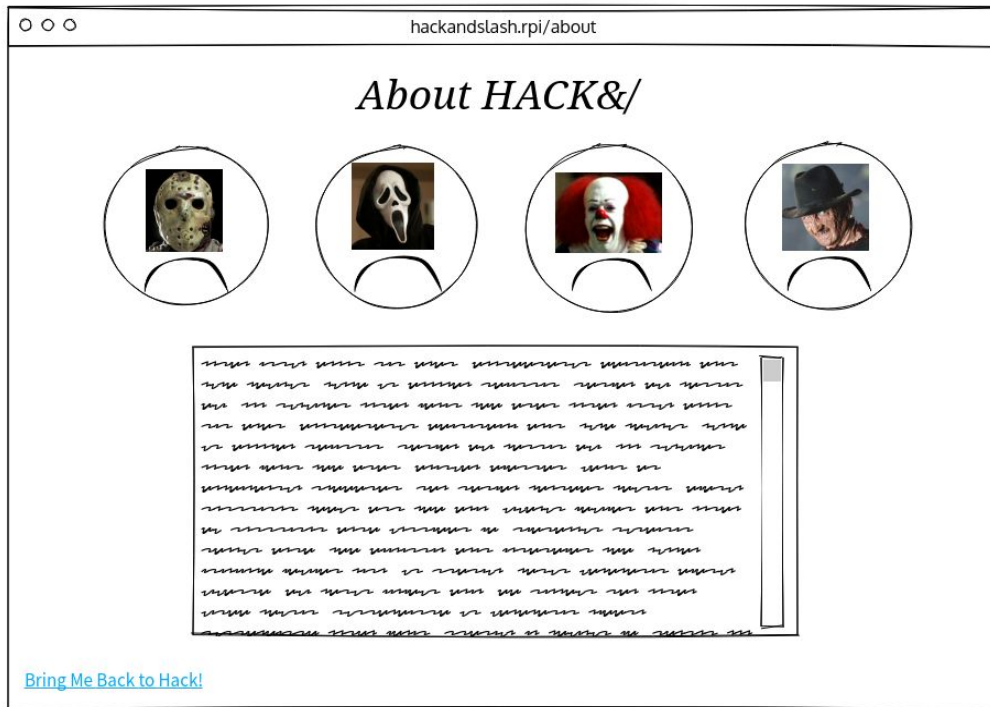
Confirm Password*

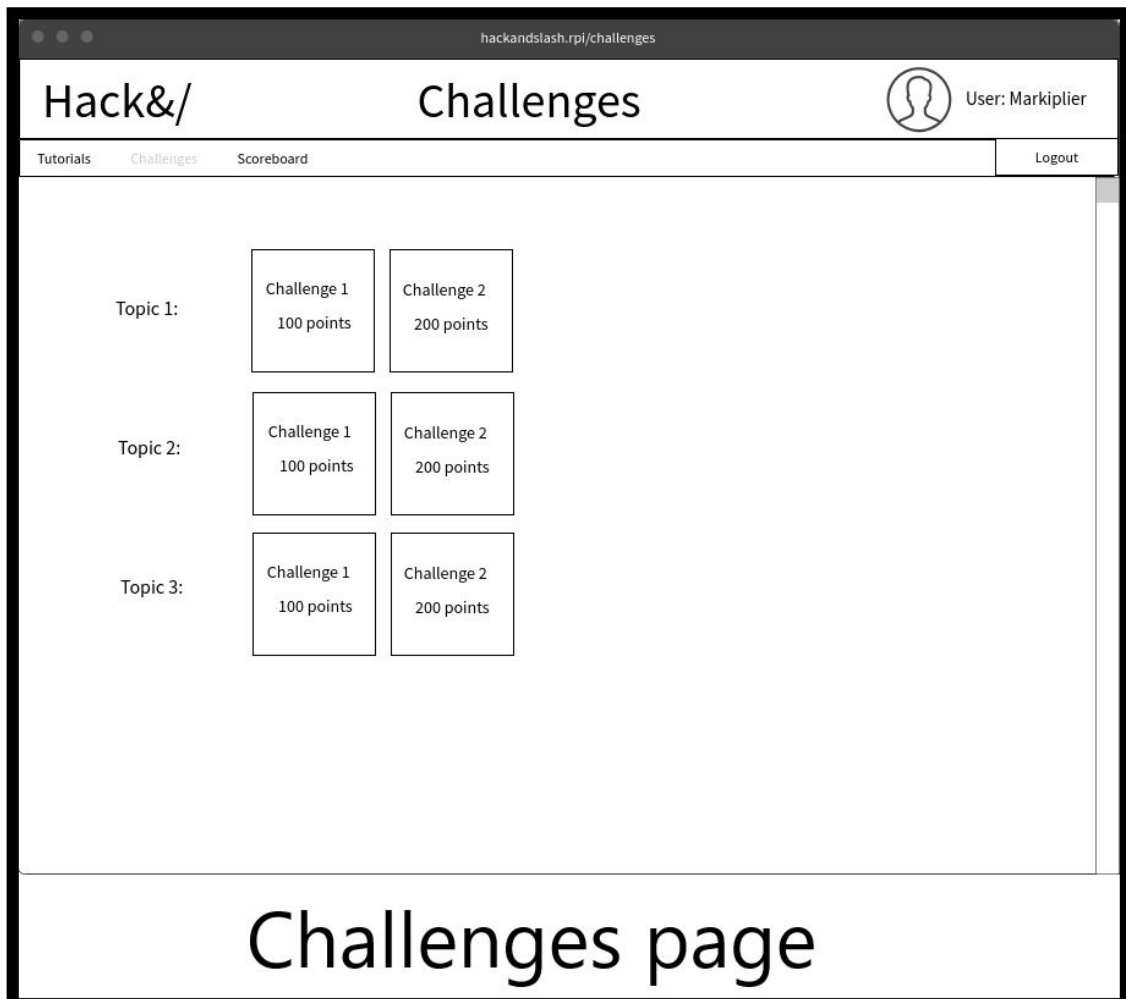
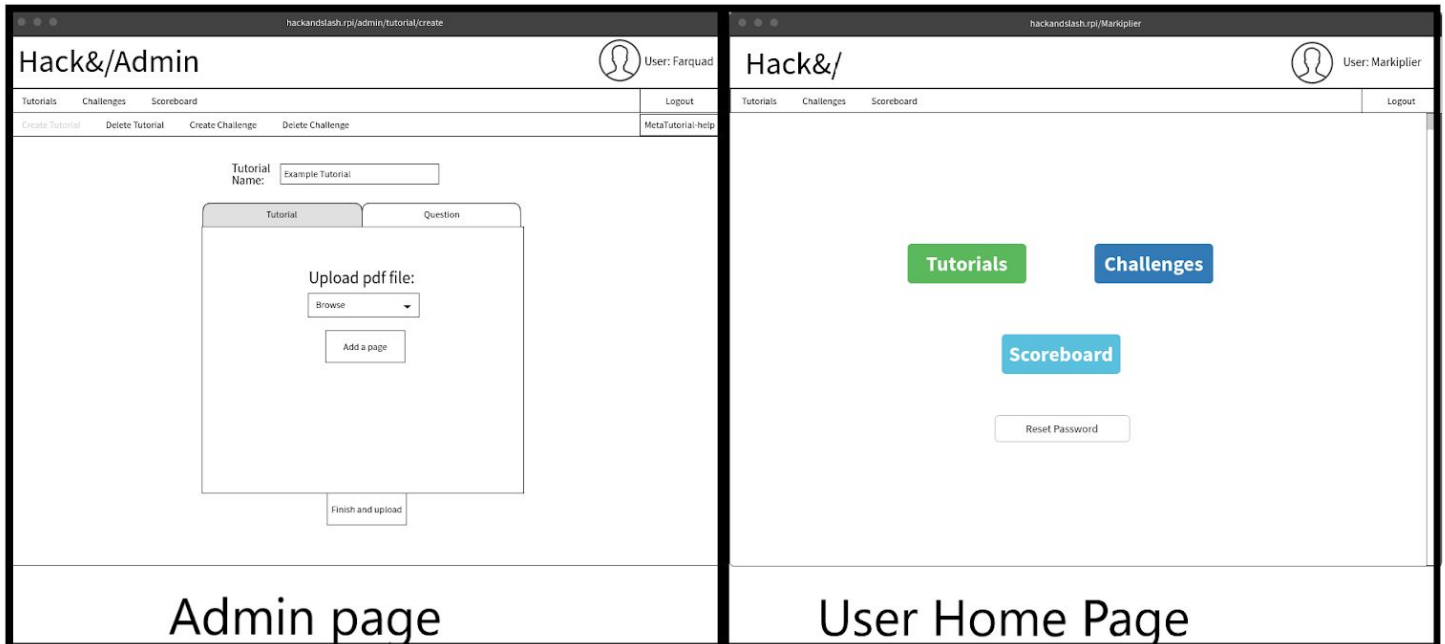
*Field is required

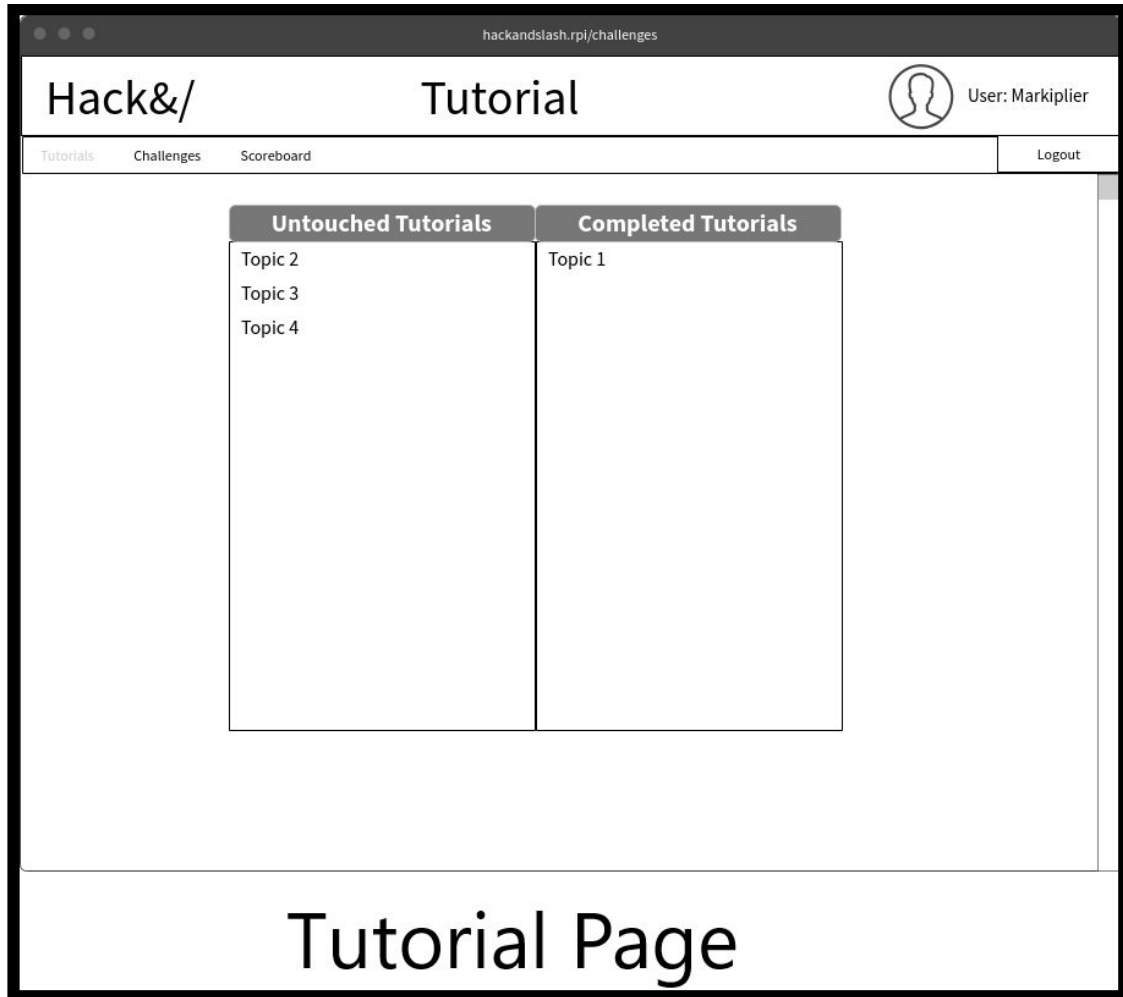
[Already Have An Account?](#)

Sign Me Up!

This wireframe shows an account creation page for 'hackandslash.rpi/createyouraccount'. It includes the 'Hack&/' logo, a profile picture placeholder, and four required input fields: 'New Username*', 'Your Email*', 'Choose a Password*', and 'Confirm Password*'. A red note '*Field is required' is shown below the fields. There is a 'Sign Me Up!' button and a link for 'Already Have An Account?'.





**Schedule:**

Special Date Information:	Date:	Task:	
Week 1	Saturday, September 15	Project Proposal	
	Sunday, September 16	Project Proposal Complete	
	Saturday, September 22	Group meeting - Finish HTML and CSS Framework	Get all page templates and file structure done
Week 2	Saturday, September 29	Group meeting - Everyone has a topic, and tutorials finished. Javascript started.	Javascript for transitions and such

Week 3	Saturday, October 6	Group meeting - Javascript finished. Challenges and php/mysql started.	Set up Database and Format of how to store Users, Challenges, and Tutorials
Week 4	Saturday, October 13	Group meeting - Challenges finished. Passwords/authentication started.	(Set up php function to authenticate and hash)
Week 5	Saturday, October 20	Group meeting - Passwords/authentication started. Securing inputs started.	
FINAL STAGES Week 6	Saturday, October 27	Group meeting - Secure inputs finished. Continue working on php/mysql. Start tutorial creation.	
Week 7	Saturday, November 3	Group meeting - continue tutorial creation page. Start challenge creation page.	
Week 8	Saturday, November 10	Group meeting - Tutorial and challenge creation page done.	
Week 9	Saturday, November 17	Group meeting - Finish debugging and complete presentations.	
Week 10	Sunday, November 18	Final Checks	
Week 11 End of Break	Sunday, November 25		
	Tuesday, November 27	Practice Presenting.	
	Wednesday, November 28	Practice Presenting.	
	Thursday, November 29	Practice Presenting.	
Presentations :	Friday, November 30		
	Tuesday, December 4		
Project due:	Friday, December 7	Submit Code and Documentation DUE!!!	

Future Goals:

These are extra applications that HACK&/’s website would utilize in the future..

- Option to reset password if the user is logged in already. [NOTE: HACK&/ will implement this if time permits]
- Make a “forgot my password” page that sends an email to the user for two step verification.
- Create a GUI for a tutorial creation page so the tutorial will be interactive.
- Add more tutorials and challenges for more diverse cybersecurity content.
- Add an admin application form for select users to gain administrative privileges.
- Add a discussion forum for each challenge so users can discuss hints.
- Expand the website to not only include tutorials for RPISEC but also other technical clubs at RPI, e.g. Rensselaer Rocket Society, RPI Flying Club, RPI Drone Club... etc.