**MITR RCC Project Proposal**

Client Organization:

The Rensselaer Cybersecurity Collaboratory (RCC) currently serves as the main cybersecurity research center at Rensselaer Polytechnic Institute. The RCC researches a wide range of cybersecurity related topics and competes in various “Capture the Flag” (CTF) challenges. The organization is currently looking to expand its outreach and collect donations to increase funding. The point of contact with the RCC is through the Director Brian Callahan and who can be contacted at [callab5@rpi.edu](mailto:callab5@rpi.edu).

Project Team:

**Christopher Reed:**

Christopher Reed is the Lead Backend Developer and Client Liaison. As the Lead Backend Developer, he oversees the project's development, ensuring that each technical aspect operates according to plan. Additionally, Chris takes on the crucial role of Client Liaison, serving as the primary point of contact with the client. His responsibilities include comprehending the client's demands, catering to those needs, and maintaining effective communication throughout the project.

**Meena Mall:**

Meena Mall performs the roles of both Project Manager and Project Designer. Her many duties include comprehending the client's requirements, managing the project team, keeping track of the progress, and ensuring quality. Meena handles the project's numerous components to ensure a smooth completion. As the project designer, she participates in the project's visual and creative components, as well as incorporating client feedback and assisting in a successful project conclusion.

**Benjamin Manicke:**

Ben Manicke takes on the roles of Lead Frontend Developer and Lead Writer. As the Lead Frontend Developer, Ben works on developing the user-facing elements to provide an engaging and interactive user experience. He will perform extensive accessibility testing to ensure that our site is usable by all users. Additionally, he contributes to the project's written content as the Lead Writer by providing informative and engaging material.

**Peter Krumpholz**

Peter Krumpholz is the Lead Backend Developer, currently pursuing a Bachelor’s Degree in Information Technology and Web Science with a concentration in Management Info Systems. He has several years of experience with both back and frontend development across multiple projects. Peter is taking the lead on backend development due to prior project experience involving organizing databases and handling database queries.

**Terry Lin:**

Terry Lin takes on the role of Fullstack Developer. Terry is essential to the project's technological solutions because of his skill in both frontend and backend development. Coding, debugging, and assuring the project's performance and functionality are among his duties.

**Raphael Chung:**

Raphael Chung works as a Fullstack Developer to ensure a comprehensive, integrated system. He additionally serves as an Assistant Writer, helping the Lead Writer create written materials such as reports.

Problem Statement:

The Rensselaer Cybersecurity Collabatory (RCC) community currently lacks a centralized digital platform to effectively showcase its achievements, profiles, events, and alumni engagement, making it challenging to attract potential donors and sponsors. Additionally, there’s an absence of a streamlined system for members to access, upload, and search through “Capture the Flag” (CTF) writeups, hindering knowledge sharing and collaborative learning. Furthermore, while there’s a backend for CTF challenges, it’s missing an intuitive frontend interface that can provide users with an interactive and immersive challenge-solving experience. This fragmented and under-optimized digital presence limits RCC’s outreach, engagement, and learning potential.

IS/IT Solution:

Concept:   
 The current aim is to create a holistic digital ecosystem tailored for the RCC community. The solution is to amalgamate the showcasing prowess of a public-facing website with the functional utility of a knowledge management system. The website will showcase RCC’s milestones, achievements, and events, while also serving as a dynamic platform for faculty, student, and alumni profiles. This website will not only foster community engagement but also attract potential donors and sponsors. Complementing this is a knowledge management system designed for the easy archival, search, and retrieval of CTF writeups. It will act as a knowledge hub, streamlining the process of uploading diverse content types, from text and images to videos and binaries. An ambitious attempt will also be made to craft a frontend that interfaces seamlessly with an existing CTF backend. Drawing inspiration from the Ghida project, this component aspires to offer users an immersive experience, from delving into challenge binaries to the triumphant capture of flags. Together, these elements coalesce to form a solution that not only celebrates the RCC community’s achievements but also empowers its members with tools for continuous learning and challenge-solving.  
  
Scope:  
 The project’s primary focus is designing and developing a public website compliant with RPI guidelines, highlighting RCC’s success, faculty, student profiles, events, and alumni engagement, complete with a unique RCC logo. Parallelly, a secure knowledge management system will be established, allowing authenticated access to a database of CTF writeups, facilitating easy uploads and searches. As an aspirational component, the project will explore crafting a frontend to interface with a pre-existing CTF backend, presenting users with interactive modules for challenge-solving. However, the full delivery of this third component is recognized as a reach goal and may not be fully realized within the project’s timeframe. The primary focus is ensuring the completion of component 1 and 2 while completing these in sequential order. The first components website will be designed using Bootstrap and React while the logo will be developed using tools from Adobe Creative Cloud. Next, the knowledge management system will be implemented using MongoDB and Node.js. Finally, the third component will require the entire MERN stack to implement a well designed and cohesive final product.