PROJECT PROPOSAL

SECURE VAULT

GROUP B 55

PUSL2021 COMPUTING GROUP PROJECT

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<u>SECURE VAULT</u>

(Password Manager & Real -Time Password Strength Checker)

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Introduction

A typical internet user manages multiple online accounts, each with its own login credentials, in today's interconnected digital landscape. Managing passwords can be a challenging task due to the competing demands of convenience and security. The user desires easy access to their accounts without the hassle of constantly juggling multiple passwords, on the one hand. Increasing numbers of cyberattacks and data breaches are highlighting the importance of secure and hard-to-crack passwords, as these are hard to crack but also secure. In order to bridge this gap, with the launch of our project, tentatively titled "SecureVault," we aim to provide a balanced solution that emphasizes both convenience and security.

This web extension was designed to address the aforementioned challenges by serving two primary purposes. Firstly, it aims to simplify the user experience by automatically saving and auto-filling passwords whenever users revisit the login page in order to streamline their user experience. By enabling this functionality, you will not have to manually enter your credentials every time you login, making the entire process much more efficient and less time-consuming. By doing so, it decreases the risk of what is known as 'password fatigue,' which is a common phenomenon whereby users resort to insecure practices such as using the same password across multiple sites as a result of having to remember so many different credentials.

Also, SecureVault goes beyond just storing passwords by incorporating an advanced password strength checker, which helps to ensure that passwords are strong. During the creation process, the extension will automatically assess a user's password strength in real-time based on a number of factors, including, but not limited to length, use of special characters, and unpredictableness, when the user is about to create a new account. In cases where a password is deemed to be weak, the extension notifies the user immediately and suggests a new, stronger one. This proactive approach encourages users to adopt robust passwords from the get-go, thereby bolstering the overall security of their online presence.

SecureVault is a company that strives to provide a user-friendly, well-rounded security solution by combining the benefits of automated password management and proactive security measures. In addition to those with less technical proficiency and a preference for ease of use, it is intended for tech-savvy, security-conscious individuals who understand the ever-present risks associated with poor password practices, and is designed for a wide range of audiences.

We hope this solution will revolutionize the way we think about and manage our online credentials in the future by offering us a multi-faceted tool that simplifies the login process while also improving the security of our accounts.

Objectives

Password management can be automated to eliminate errors associated with manual entry and enhance the efficiency of the logon process.

• **Enhance Password Security:** To actively encourage and facilitate the use of strong, unique passwords.

• **An Easy-to-Use User Interface:** This will enable you to easily manage passwords and settings that you have saved.

• **Compatibility with popular browsers such as Chrome, Firefox, and Safari :** To ensure the extension has a wider reach by being compatible with the most popular browsers out there.

• **Encryption of data:** Encryption of data using advanced algorithms is essential to ensuring the security of user data.

• **Real-time Notifications:** To provide immediate feedback and suggestions on the strength of the password during the creation of a new account.

• **Educating users:** To assist them in understanding and maintaining secure password practices, users need to be educated.

• **Scalability and Performance:** The system must be able to accommodate an ever-growing user base without sacrificing performance or functionality in any way.

• **Compliance and accessibility:** We strive to follow the legal standards for data protection as well as ensure that persons with disabilities can use our products.

• **User Feedback and Iterative Improvement:** In addition to real-world feedback on the extension, we plan to fine-tune it based on user feedback to improve on future versions.

Why We Are Implementing This Solution

It has never been more apparent that the need for a tool like SecureVault is increasing. In the age of increased online activity, users are often faced with the challenge of managing multiple accounts, resulting in poor security practices like reusing passwords or opting for easily guessable combinations. Due to this, users are more likely to be vulnerable to cyber threats such as identity theft and unauthorized access to their accounts.

A number of password management solutions are available today, but they are usually focused solely on convenience or security, and rarely provide a balanced approach to password management that caters to a broad range of users. In order to fill this gap, SecureVault offers a dual-functionality extension with a seamless online experience that is secure and seamless.

SecureVault will be able to solve a pressing need for a password management tool that is intuitive, secure, and comprehensive, capable of serving an audience with varying levels of technological proficiency and security awareness, by achieving the above objectives.

Target Users

SecureVault is tailored to address the password management needs of a diverse internet user base. Recognizing the universal requirement for robust online security, we've identified the following target users:

• **General Consumers:** The majority of internet users manage multiple online accounts for a variety of purposes - for example, social media, email, online banking, etc. In the present day, when there are so many accounts available to them, it is becoming increasingly important that a tool is devised to help them manage their login credentials in a secure and convenient manner.

• **Small Business Owners**: A password management system can be very challenging for entrepreneurs who use internet-based tools to run their business online or use internet-based tools for their operations. If they want to be sure they are using strong passwords to access supplier portals, email platforms, or e-commerce sites without having to remember each one individually, they need a reliable tool that makes it easy.

• **Corporate Employees**: Professionals often find themselves juggling various work-related accounts, such as email accounts, social media accounts, email services, and email clients. They may therefore benefit from a useful tool which facilitates the creation, storage, and auto-filling of passwords, ensuring that company information remains safe.

• **Students:** A dependable password manager is one of the best available tools that can simplify students' academic online activities as they navigate academic platforms, library databases, and other education-related sites that require passwords.

• **Tech Enthusiasts:** SecureVault is a top notch tool that provides both security as well as convenience to the tech-savvy market, making it an excellent choice for those who are more aware of the need for online security. If there was any group more aware of the need for online security, it would clearly be this group.

• **Elderly Users**: Our extension enables users to securely access their health records, engage on social platforms, shop online, and access their social networks as they become more active in the digital world. This extension ensures seniors can do all of this safely, whether they're using social platforms, accessing their health records, or shopping online.

• **Persons with Disabilities**: As a result of SecureVault's inclusive approach, it ensures that the extension meets all accessibility standards and is user-friendly, addressing the needs of all users.

We aim to make the digital realm a more secure place for all users by building SecureVault, which we believe can fulfill the needs of all the diverse users. As a result, our main objective in building SecureVault is to provide a universally applicable tool that meets the needs of every us

Application Features and Description

It comes with an impressive set of features designed to simplify password management as well as strengthen online security as a whole. Below are a few of the most prominent capabilities of the SecureVault web extension.

1. Password Saving and Auto-fill:

The SecureVault extension ensures an easy and seamless login experience by allowing users to save passwords the first time they log in to a website. Upon returning, the extension will auto-fill their login information to ensure a seamless login experience.

• Benefit: By eliminating the need for manual password entry, you will be able to reduce the likelihood of login errors and improve the overall browsing experience by using this feature.

2. Real-time Password Strength Checker:

SecureVault's password strength analysis is performed in real-time when users create or edit passwords while they are on the signup or account settings page. This is done by integrating a combination of algorithms to determine how complex, long, and unpredictable the password is.

• Benefit: By taking such a proactive approach, users will be enlightened about password security, which will encourage more of them to adopt stronger passwords, thus enhancing their online security.

3. Password Strength Rating:

A security rating is provided after the password strength is checked by SecureVault, with ratings ranging from 'Weak' to 'Very Strong' based on the password's composition. The rating helps ensure that users are aware of the level of security of the passwords they choose.

• Benefit: By providing visual representation of password strength, users can receive instant feedback, allowing them to judge the robustness of their passwords and take appropriate action based on their findings.

4. Secure Password Suggestions:

The SecureVault product has the ability to provide a number of different stronger, more secure passwords if a user's chosen password falls below a certain strength threshold. A user can either choose to adopt these suggestions directly or choose them as inspiration to construct their own secure passwords.

• Benefit: With the help of this feature, users are able to use best password practices, which enables them to further protect their online accounts from unauthorized access by adopting strong password practices.

5. Encrypted Storage:

There is full encryption of all stored passwords using state-of-the-art cryptographic techniques, which ensures they are secure and cannot be accessed by unauthorized persons or external threats.

• Benefit: By storing credentials with the utmost security, users can rest assured that their personal information is kept safe and secure, ensuring the safety of their online identity.

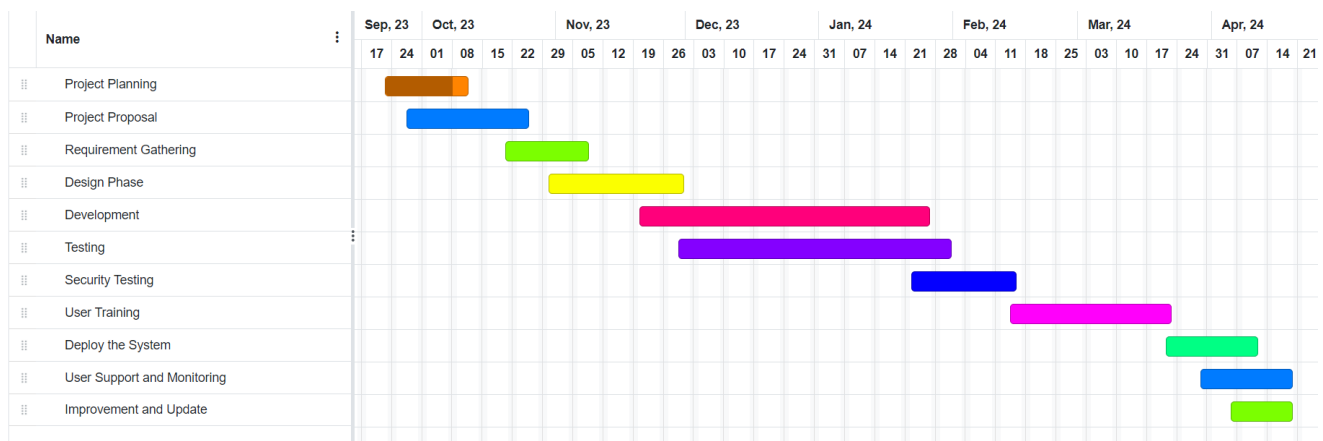**6. User-friendly Interface:**

With SecureVault, even nontechnical people will be able to navigate its clean and intuitive interface, making it easy to use even if they do not have a lot of technical knowledge.

• Benefit: SecureVault came up with an intuitive user interface that ensures all users, regardless of their tech proficiency, can enjoy the benefits of SecureVault to the fullest extent possible.

It's what we call a comprehensive online security solution. SecureVault is more than just a password manager - it's a comprehensive tool that helps people simplify their digital lives, while also enhancing their security and privacy online. When users integrate SecureVault into their browsers, this tool makes their lives easier and more secure online.

Project Timeline

Providing an overview of the tasks, timelines, and team members responsible for developing a Password Manager and Strength Checker system, we have outlined a comprehensive project plan. We have created a visual representation of our project roadmap, spanning a seven-month period beginning in October, and ending in April of this year. With this chart, efficient project management, seamless execution, and successful project completion can be achieved.

Name	Sep, 23	Oct, 23	Nov, 23	Dec, 23	Jan, 24	Feb, 24	Mar, 24	Apr, 24
	17 24	01 08 15 22	29 05 12 19 26	03 10 17 24	31 07 14 21 28	04 11 18 25	03 10 17 24	31 07 14 21
Project Planning								
Project Proposal								
Requirement Gathering								
Design Phase								
Development								
Testing								
Security Testing								
User Training								
Deploy the System								
User Support and Monitoring								
Improvement and Update								

The scope, objectives, and success criteria of the project will be defined in the initial phase. A clear understanding of project expectations will be achieved during the Requirement Gathering, in which we will gather and document detailed requirements for both the password manager functionality and the password strength checker functionality.

During the design phase of the password manager project, we will work on creating a user-friendly interface and designing the system architecture that meets the needs of scalability and security. This phase will include the development of a robust database schema, as well as the development of a password strength checking algorithm in order to ensure secure password storage.

To ensure seamless interactions between the components within the system, comprehensive unit testing and integration testing will be carried out in order to ensure seamless interaction between the components. User acceptance testing will be conducted to verify the system's functionality and to collect feedback from users.

Dedicated support team members will be available to address the inquiries and issues of users on a continuous basis. Furthermore, the system will be continuously monitored, ensuring that security vulnerabilities and operational problems are identified and quickly resolved. User feedback and evolving security threats will be used to continuously improve and update the system.

As the project progresses, the Gantt chart will be a dynamic tool that keeps track of progress and ensures that the project stays on course. The chart will be updated and adjusted on a regular basis during each phase of the project to reflect the current project status in real time, resulting in a successful and efficient completion of the project.

Use Case Diagram