

## Password Manager

Matthew Bare

Cody Danielson

Zachary Hunt

Tyler O'Dowd

### Project Description

This project is to create a secure password management system. By using the Flutter framework, the idea is to make a cross platform application where users can store their passwords into a securely managed local database. By storing all of the user password data locally, we as developers will be better able to securely protect and manage said data. Additionally, users will be able to create an account with which they will be able to sync their password databases between devices. This is the key feature that sets our password manager apart from many of the other offerings currently available. We will be using this project as a starting point to build from: [https://github.com/Animatted/password\\_manager](https://github.com/Animatted/password_manager). With this project as a starting point, we will better be able to focus on the issue of syncing databases between devices in a secure manner. That being said, the aforementioned project has the bare minimum features to be considered a password management system and is missing a lot of the functionality that would make it a pleasant user experience. Specific areas that we plan to improve upon are as follows:

- User password data is currently contained within a Firebase Firestore database as opposed to a locally managed system.
- Moving to the local database system would require us to come up with a solution for being able to sync the database between devices.
- The UI is very basic and lacks many common quality of life features. This will require an overhaul of the front end of the application.
- The current method of authentication through Firebase will remain as a primary form of authentication. However, we would like to expand authentication to include other means such as biometrics and two-factor.
- The current state of the project has security flaws such as hard coded keys and using non-audited hash and encryption libraries. These would need to be improved to better match the goal of a secure password management system.
- Various bug fixes

Additionally, we plan to partner with the University of Wyoming's Cybersecurity Education and Research (CEDAR) lab for additional security testing and expertise outside of the development team. This will allow for us to better meet the goals of creating the most secure password management system we can manage for our user base.

## Development Timeline:

### **October:**

#### Research

- Local database options
- Secure database transfer options

#### Development:

- Begin expanding UI elements
- Basic bug fixes

### **November**

#### Research:

- Audited cryptology libraries for Flutter
- Database transfer options cont.

#### Development:

- Local database implementation
- Expand account functionality

### **December**

#### Research:

- Finish database transfer research
- Secondary authentication methods

#### Development:

- Local database encryption implementation
- Begin sync development

Evaluate Progress and adjust goals if need be

### **January and February**

- Begin security testing with CEDAR lab
- Database sync development
- Bug fixes

### **March and April**

- Polish and publish