

# Project Report: Vault Management Application (MyPass Vault)

## Objective

The goal of this project was to create a secure vault management application that allows users to store, manage, and protect sensitive information such as usernames, passwords, credit card details, and secure notes. The application focuses on usability and security, ensuring that sensitive data is masked by default and can only be revealed when necessary.

## Development Overview

### Key Features Implemented

- 1. User Authentication:**
  - Built a secure user registration and login system.
  - Integrated password hashing using **Flask-Bcrypt** for secure storage.
  - Enforced strong password requirements during registration.
- 2. Vault Management:**
  - Created functionality to add, view, and manage vault items such as login credentials, credit card details, and notes.
  - Designed a form to input data with fields for username, password, URL, credit card number, and CVV.
- 3. Data Masking and Unmasking:**
  - Implemented front-end masking of sensitive fields such as passwords and CVVs.
  - Enabled an "Unmask" button to reveal actual data securely using JavaScript and back-end communication.
- 4. Password Generator:**
  - Added a password generator feature to create strong, random passwords.
  - Provided customizable options for length, special characters, and uppercase letters.
- 5. Session Management:**
  - Implemented user sessions with auto-logout after a configurable timeout for enhanced security.
- 6. Flash Messaging:**
  - Used flash messages to notify users about actions (e.g., successful login, registration errors).
- 7. Error Handling:**

- Redirected unauthorized access to the login page and displayed appropriate error messages.

## Technologies Used

- **Flask Framework** for back-end development.
- **SQLite** as the database for storing user and vault data.
- **Flask-Bcrypt** for password hashing.
- **HTML, CSS, JavaScript** for the front-end interface.

## Results

- Successfully built a fully functional vault management system with an intuitive interface.
- Users can securely store and retrieve sensitive data, with masking by default.
- The application enforces strong security standards for data storage and access.
- Added a user-friendly password generator to improve password practices.

## Future Enhancements

1. **Two-Factor Authentication:** Add an extra layer of security during login.
2. **Search Functionality:** Enable users to search through stored vault items.
3. **Mobile-Friendly Design:** Optimize the interface for better usability on mobile devices.
4. **Advanced Encryption:** Upgrade to stronger encryption mechanisms for stored data.

## Conclusion

This project achieved its objective of providing a secure and user-friendly vault management application. It demonstrates strong implementation of authentication, data protection, and usability features. With additional enhancements, this application has the potential to serve as a robust tool for managing sensitive information.

ScreenShots:

## Create an Account

Email

Password

Confirm Password

Security Question 1

Security Question 2

Security Question 3

Generate Strong Password

Register

Already have an account? [Log in here.](#)

# Login

Email

Master Password

Login

Don't have an account? [Register here.](#)

Password

12345

Generate



Weak password. Ensure it includes at least one uppercase letter, one lowercase letter, one number, and one special character.

Confirm Password

12345



Password

FB^8G57kq8L^

Generate



Confirm Password

FB^8G57kq8L^



# MyPass Vault

## Add New Item

Item Type:

Username:

Password:

URL:

Credit Card Number:

CVV:

## Your Saved Vault Items

### Credit Card

Username: \*\*\*\*\*

Password: \*\*\*\*\*

URL: N/A

Credit Card Number: N/A

CVV: N/A

# MyPass Vault

- Please log in to access the vault.
- Logged in successfully.

## Add New Item

Item Type:

Username:

Password:

URL:

Credit Card Number:

CVV:

## Your Saved Vault Items

### Credit Card

Username: dorahmohamed8@gmail.com

Password: \*\*\*\*

URL: N/A

Credit Card Number: N/A

CVV: N/A

### Credit Card

Username: dorahmohamed8@gmail.com

Password: \*\*\*\*

URL: N/A

Credit Card Number: \*\*\*\*

CVV: N/A

### Login

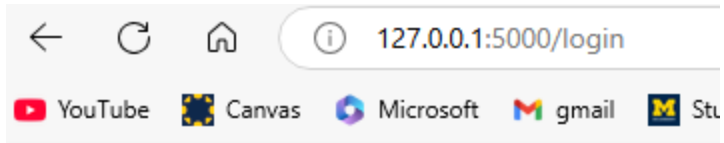
Username: dorahmohamed8@gmail.com

Password: \*\*\*\*

URL: N/A

Credit Card Number: \*\*\*\*

CVV: N/A

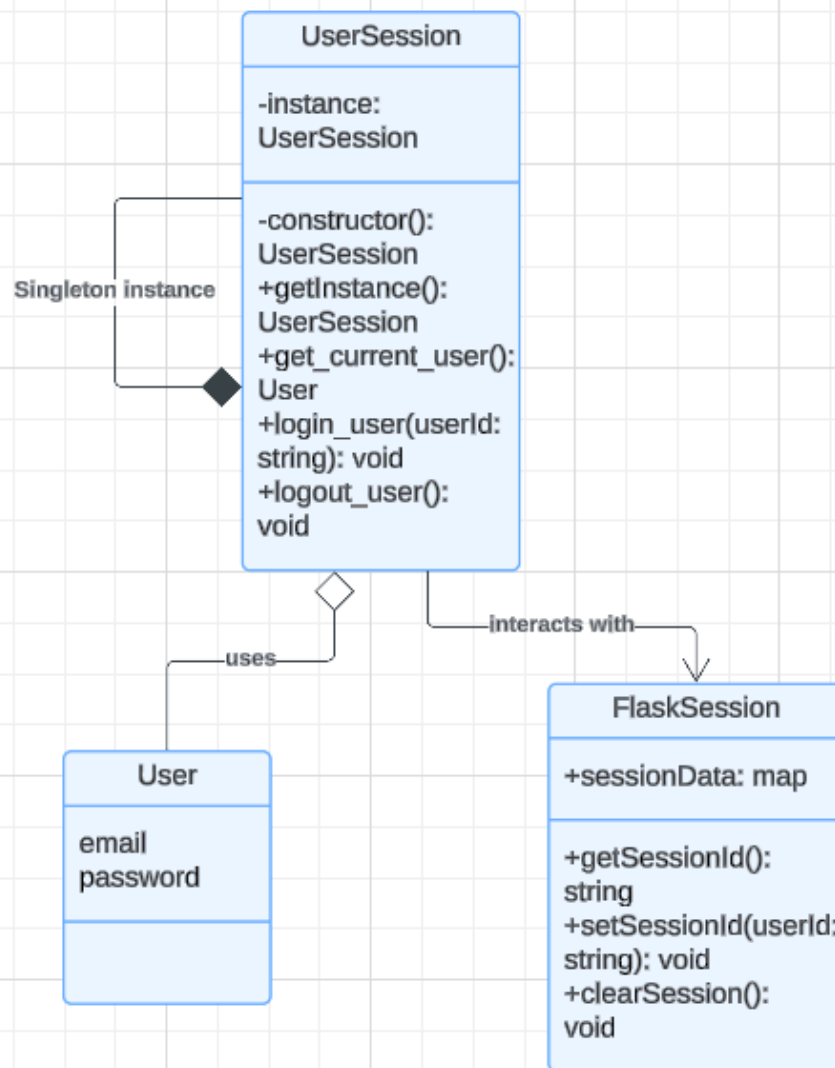


# Login

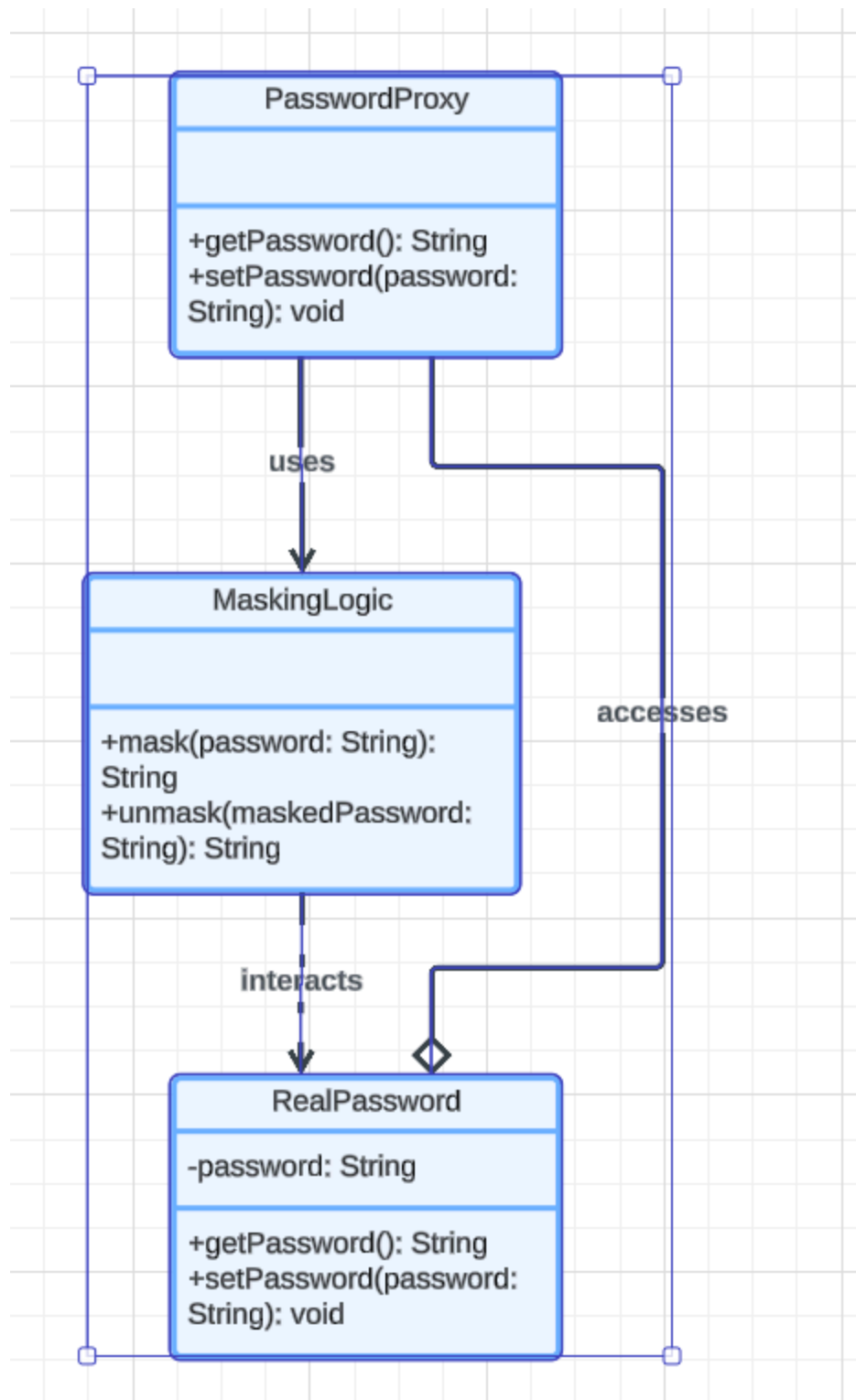
Email

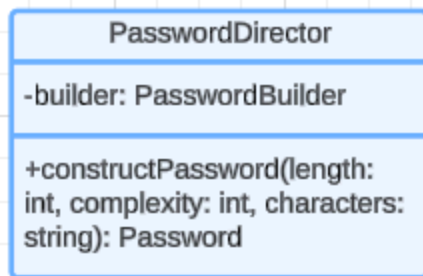
Master Password

Don't have an account? [Register here.](#)

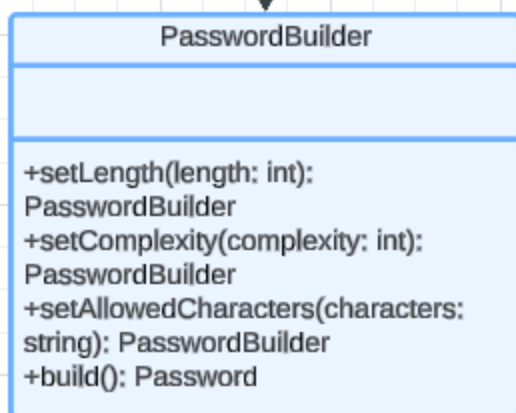




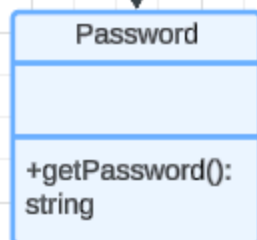


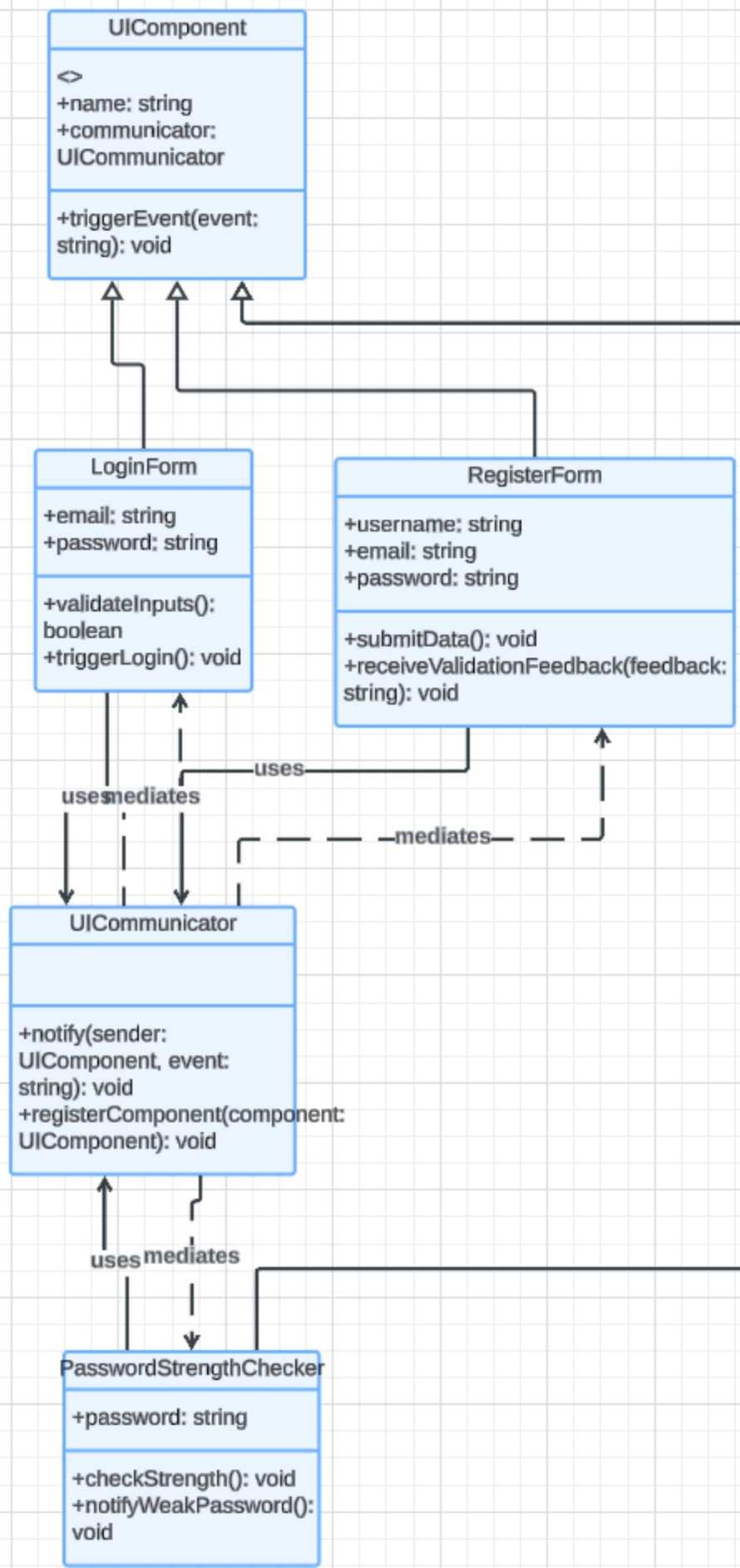


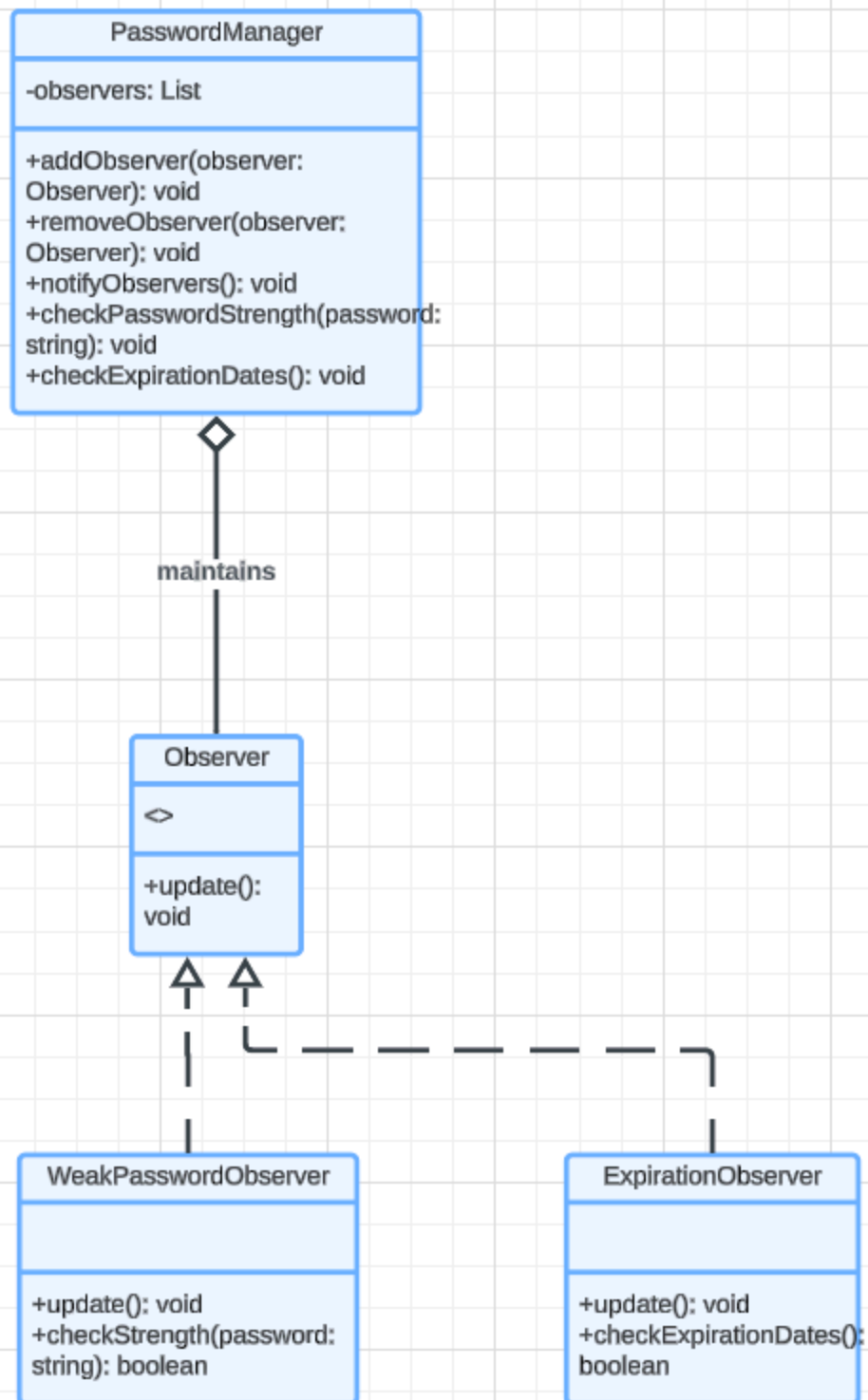
uses



builds







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