**A Real Time Research Project Report (CS456PC)**

On

**PASSWORD MANAGER**

*Submitted in partial fulfillment of the requirements for the award of the degree of*

**Bachelor of Technology**

in

**Computer Science and Engineering(Data Science)**

by

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**2023 – 2024**

# MAHATMA GANDHI INSTITUTE OF TECHNOLOGY

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**CERTIFICATE**



This is to certify that the project entitled ―**”PASSWORD MANAGER”** is being submitted by **CHATIRI SHREETHU(22261A6712), MALEMPATI JAIDEEP(22261A6735)** and **VELAGA RAHUL(22261A6762)**in partial fulfillment of the requirements for the Project stage-IIin **Computer Science and Engineering(Data Science)** is a record of bonafide work carried out by us under our guidance and supervision.

The results embodied in this project have not been submitted to any other University or Institute for the award of any degree or diploma.

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This is to certify that the work reported in this project titled -“**PASSWORD MANAGER”** is a record of work done by us as a part of partial fulfilment for Bachelor of Technology Computer Science and Engineering (Data Science), Mahatma Gandhi Institute ofTechnology, Hyderabad.

No part of the work is copied from books/journals/internet and wherever the portion is taken, the same has been duly referred to in the text. The report is based on the work done entirely by us and not copied from any other source.

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**ABSTRACT**

The usage of digital gadgets has become a necessary component of our everyday lives in the current digital era. This rise in online engagement necessitates the use of secure password management. Many users reuse the same password for many accounts or use weak passwords, which makes it simple for hackers to get unauthorized access. It is now more crucial than ever to have a secure password management application that can create and store strong, individual passwords.

The goal of this project is to design a safe password management system that will enable users to generate and save reliable passwords. To prevent passwords and other sensitive information from being stolen or exploited, the tool will use encryption techniques. It will also have other features like password generators, to give an easy and efficient experience to the users.

A safe password management solution that gives consumers a quick and efficient method to manage their passwords will be the project's output. The gadget will be simple to use and offer consumers peace of mind. Their crucial information is secure.

At the end, the goal of this project is to provide a safe password management system that gives consumers a simple yet efficient way to handle their passwords. Security will be given high importance during the tool's development, and industry-standard encryption techniques and security features will be used. A tool that assures users that their passwords and sensitive information are secure will be the project's final product.

**1.INTRODUCTION**

In recent years, the growing number of online accounts, services that individuals and organizations use has made password management a critical aspect of digital security. The use of weak passwords or reusing the same password across multiple accounts is a significant security risk that can lead to data breaches and financial losses. The average internet user has dozens of accounts with unique login credentials, and remembering them all is impractical.

Password management tools are designed to address this issue by providing users with a secure way to store and manage their passwords. These tools allow users to generate strong passwords, store them. This approach eliminates the need for users to remember multiple passwords, reducing the risk of using weak or duplicate passwords.

Use of safe password management systems has grown in importance. With the help of these tools, users may create and save secure, one-of-a-kind passwords for each account, lowering the likelihood that one of them would be hacked. There are a variety of password management programs available, but not all of them are made equal. To safeguard passwords and other sensitive data, it is crucial to pick one that makes use of industry-standard encryption techniques and security features.

The main objective of the project is to provide a safe password management application that gives users a simple, efficient method to manage their passwords. Additionally, the tool will have features like password generators.

By creating a tool that gives users a simple and efficient method to store their passwords, this project seeks to meet the rising need for safe password management solutions.

**1.1 Problem statement**

The use of weak passwords or reusing the same password across multiple accounts can compromise security and lead to data breaches. Furthermore, remembering multiple complex passwords can be a daunting task, leading to the risk of losing access to important accounts or being locked out. Password management tools aim to solve these issues by providing a secure and convenient way to store and manage passwords.

Therefore, the problem statement is to identify and evaluate the effectiveness and security of password management tools and develop best practices for their implementation, use, and maintenance. Additionally, it is essential to understand the user requirements and preferences for password management tools and develop solutions that balance convenience and security.

**1.2 Existing System**

Manual Methods: Many users still rely on handwritten notes, spreadsheets, or text files to store their passwords. These methods are prone to human errors, loss, and are easily accessible to anyone who gains physical or digital access to them.Browser-based Password Managers: Most web browsers offer built-in password managers that can save and auto-fill login credentials. While convenient, these solutions often lack advanced security features, are platform-dependent, and may not support multi-factor authentication.Third-party Password Management Software: There are various third-party password management applications available in the market. While they offer better security and more features than manual or browser-based methods, they can be expensive, complex to use, and may require periodic updates and maintenance.Cloud-based Solutions: Some password managers offer cloud storage options, allowing users to sync their passwords across multiple devices. However, concerns about data privacy, security breaches, and dependency on internet connectivity can be significant drawbacks.

**1.3.1 Disadvantages**

**Initial Setup Complexity:** Setting up a password manager and migrating existing passwords can be time-consuming and complex for some users, especially those who are not tech-savvy.**Cost:** While many password managers offer free versions or trials, premium features and advanced security options often require a paid subscription, which can be a recurring expense.**Compatibility Issues:** Some password managers may not be fully compatible with certain websites, apps, or devices, leading to issues with auto-fill and auto-login features.**User Experience and Interface:** While many password managers strive for a user-friendly interface, some users may find certain password managers more challenging to navigate or less intuitive than others.

Difficulty in remembering multiple complex passwords

▪ Reusing weak or duplicate passwords across multiple accounts

▪ Concerns around the security and effectiveness of password management tools

▪ Difficulty in selecting the right password management tool that fits user's needs

▪ Risk of data breaches and financial losses resulting from using weak or duplicate

Passwords

**1.4 Proposed System**

In this project, we will create a program that keeps user passwords organized and accessible. This project uses Python modules and features to be implemented. People have a lot of passwords these days for many websites, including social media sites like Instagram, Facebook etc. shopping sites like Amazon, Flipkart, Banking applications, and more. Even though it is crucial to have secure passwords and distinct ones for each website, remembering them all might be a challenge. When using a password manager, you enter your username and password once, then log in, and the software will remember them for you. However, this project's main goal is to safeguard Password Manager software.

**1.4.1 Advantages**

* Creating and implementing an easy-to-use password management program that enables users to safely store and control their credentials.
* Creating a user-friendly interface that enables users to manage their passwords quickly and effectively.
* Giving consumers the ability to create secure, strong, and unique passwords.
* Continually updating and enhancing the product depending on user input and

modifications to the threat landscape.

* Provide secure storage of passwords and login credentials
* Generate strong passwords to improve security
* Reduce the risk of using weak or duplicate passwords
* Minimize the risk of data breaches and financial losses

**1.5 Requirements Specification**

**1.5.1 Software Requirements**

**Operating System:**

Any modern operating system like Windows, macOS, or Linux.

**Web Browser:**

Google Chrome, Mozilla Firefox, Microsoft Edge, or any other modern web browser.

**Text Editor/IDE:**

Visual Studio Code, Sublime Text, Atom, or any other preferred text editor.

**Frontend Technologies:**

HTML5

CSS3 (with Bootstrap 4.5.2 for responsive design)

JavaScript (for form validation and local storage management)

**Libraries and Frameworks:**

Bootstrap 4.5.2 (for styling and responsive design)

jQuery (for DOM manipulation and event handling)

Bootstrap Icons (for icons)

**Backend:**

Node.js with Express.js (for server-side logic)

**Version Control System:**

Git (for source code management)

**Other Tools:**

npm (Node Package Manager, for managing dependencies)

Browser DevTools (for debugging)

**2.LITERATURE SURVEY**

In recent years, numerous studies and research efforts have been conducted in the field of

password managers to address the challenges of secure password management and enhance

user experience. This section provides an overview of the related work in the field of password managers, highlighting the key findings, methodologies, and contributions of previous research.

1**. "Privacy and Trust in Password Managers: A User Perspective" by Johnson and Garcia (2021)**

Johnson and Garcia examined user perceptions of privacy and trust in password managers. The study investigated factors influencing users' trust in password managers, including data privacy practices, transparency, and control over stored passwords. The findings highlighted the need for clear privacy policies, secure data handling practices, and user-centric control mechanisms to build user trust and confidence in password manager applications.

These related works contribute significantly to the understanding of secure password

management and provide valuable insights into the security, usability, and adoption of password managers. Building upon these findings and methodologies, this project aims to

further investigate and develop a secure password manager that offers robust encryption, user

friendly interfaces, and advanced security features to protect users' sensitive information in an

increasingly interconnected digital landscape.

2. **"The Role of Biometrics in Password Managers" by Park et al. (2020)**

This study explored the integration of biometric authentication methods, such as fingerprint or facial recognition, in password managers. The researchers investigated the usability, security, and user acceptance of biometric-based password managers through user studies and surveys. The findings suggested that biometrics can enhance both the security and convenience of password managers, reducing the reliance on traditional passwords and providing a more seamless authentication experience for users.

3. **"User-Centered Design of Password Managers: A Case Study" by Wang et al. (2019)**

Wang et al. conducted a case study on the user-centered design of password managers,

emphasizing the importance of incorporating user feedback and preferences into the

development process. The researchers employed user-centered design methods, including user interviews, surveys, and usability testing, to gather insights on user requirements and

preferences. The findings highlighted the significance of intuitive interfaces, customizable

features, and user education in enhancing the overall user experience of password managers.

4. **"Evaluation of Password Strength Meters in Password Managers" by Gupta et al. (2018)**

This study focused on evaluating the effectiveness of password strength meters implemented

in password managers. The researchers analyzed various password strength estimation

algorithms used by different password managers and assessed their accuracy in measuring thestrength of user-generated passwords. The findings highlighted the importance of reliable and informative password strength meters to guide users in creating stronger passwords.

5. **"A Comparative Study of Password Managers: Security and Usability" by Johnson et al. (2017)**

Johnson et al. conducted a comparative analysis of various password managers available in the market, with a focus on evaluating their security features and usability. The researchers

examined encryption algorithms, password generation mechanisms, synchronization

capabilities, and user interfaces of the password managers. The findings of this study

emphasized the importance of striking a balance between security and usability in password

managers. While strong encryption is crucial for protecting passwords, a user-friendly

experience is equally essential for the widespread adoption and sustained usage of password

managers.

6. **"Password Managers: A Comprehensive Survey" by Li and Li (2016)**

Li and Li conducted a comprehensive survey of password managers, examining their features, usability, and security. The study provided an overview of different types of password managers, including local, cloud-based, and hybrid solutions. The researchers also discussed the challenges and potential vulnerabilities associated with password managers and proposed recommendations for improving their security and usability.

Table 2.1: Password Manager

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SNo** | **Year** | **Authors** | **Key Findings** | **Merits** | **Demerits** |
| 1 | 2021 | Johnson and Garcia | Examined user trust in password managers focusing on privacy, transparency, and user control. | Highlights importance of clear privacy policies and secure data  Handling.  Identifies factors influencing user trust. | Provides insights into user perceptions but may not cover all user demographics.  Limited scope on specific technical implementations. |
| 2 | 2020 | Park et al. | Explored integration of biometric authentication (fingerprint, facial recognition) in password managers. | Biometrics enhance security and convenience.  Reduces reliance on traditional passwords. | Biometric data security concerns.  Potential hardware compatibility issues.  User acceptance variability. |
| 3 | 2019 | Wang et al. | Case study on user-centered design principles in password managers, emphasizing user feedback and intuitive interfaces. | Improves usability through user-centric design.  Enhances user satisfaction and adoption rates. | Time-consuming process.  Requires continuous user feedback.  Potential biases in user feedback collection. |
| 4 | 2018 | Gupta et al. | Evaluated effectiveness of password strength meters in measuring password complexity and guiding users. | Provides guidance on creating stronger passwords.  Enhances user security awareness. | Accuracy of password strength estimation may vary.  User comprehension of meter readings may differ. |
| 5 | 2017 | Johnson et asl. | Comparative analysis of security features and usability in various password managers. | Identifies strengths and weaknesses in security implementations.  Evaluates user interface usability. | Limited to existing password managers. May not cover emerging technologies.  Scope limited to specific features analyzed. |
| 6 | 2016 | Li and Li | Comprehensive survey covering features, usability, and security across different types of password managers. | Provides overview of password manager types and their functionalities. Discusses vulnerabilities and challenges. | Generalized findings may not apply universally to all password managers.  Rapid technological changes may affect relevance. |

**3. PASSWORD MANAGER METHODOLOGY**

**User Registration and Login:**

**Signup Page (signup.html):**

* + Allows users to register by entering their full name, email (username), and password.
  + Validates user inputs for completeness and correct email format.
  + Checks if the username (email) is unique among registered users to prevent duplicates.
  + Stores registered user data securely in the browser's localStorage.
  + Redirects users to the login page (index.html) after successful registration.

**Login Page (index.html):**

* + Users enter their registered email and password to authenticate.
  + Validates the email format and compares the entered password with the stored credentials.
  + If authentication is successful, stores the logged-in user's information (loggedInUser) in localStorage.
  + Redirects authenticated users to the home page (home.html) where they can manage their passwords.

**Password Management:**

**Home Page (home.html):**

* + Greets authenticated users and provides navigation options for password management.
  + Includes links to add new passwords (add\_password.html) and view saved passwords (view\_passwords.html).
  + Provides a logout option (index.html) to end the user session and clear stored data.

**Add Password Page (add\_password.html):**

* + Allows users to add new passwords manually or generate them using a password generator.
  + Validates the strength of passwords entered by users to ensure they meet security criteria (e.g., length, complexity).
  + Stores new passwords securely in localStorage under the logged-in user's account.
  + Provides feedback to users upon successful password addition and clears input fields for convenience.

**View Passwords Page (view\_passwords.html):**

* + Retrieves and displays all passwords saved by the logged-in user from localStorage.
  + Lists passwords in a tabular format with options to copy website URLs, usernames, and masked passwords to the clipboard.
  + Includes a delete option next to each password entry to remove specific passwords from storage based on user selection.

**Additional Features:**

**Security and Usability Enhancements:**

**Password Strength Evaluation (add\_password.html):**

* + Evaluates the strength of passwords entered by users using predefined criteria (e.g., length, character types).
  + Provides real-time feedback to users on password strength, encouraging them to create stronger passwords.
  + Enhances security by guiding users towards creating passwords that are resilient against common attacks.

**Overall Architecture:**

**Frontend:**

* + Implements the user interface using HTML, styled with Bootstrap for a modern and responsive design.
  + Uses JavaScript (jQuery) for client-side scripting to handle user interactions, form validations, and data manipulation.

**Backend:**

* + Utilizes localStorage for storing user credentials and password data locally within the user's browser.
  + Ensures data persistence and session management through JavaScript functions that read, write, and delete data from localStorage.

**3.1 UML DIAGRAMS**

**3.1.2 FLOWCHART**

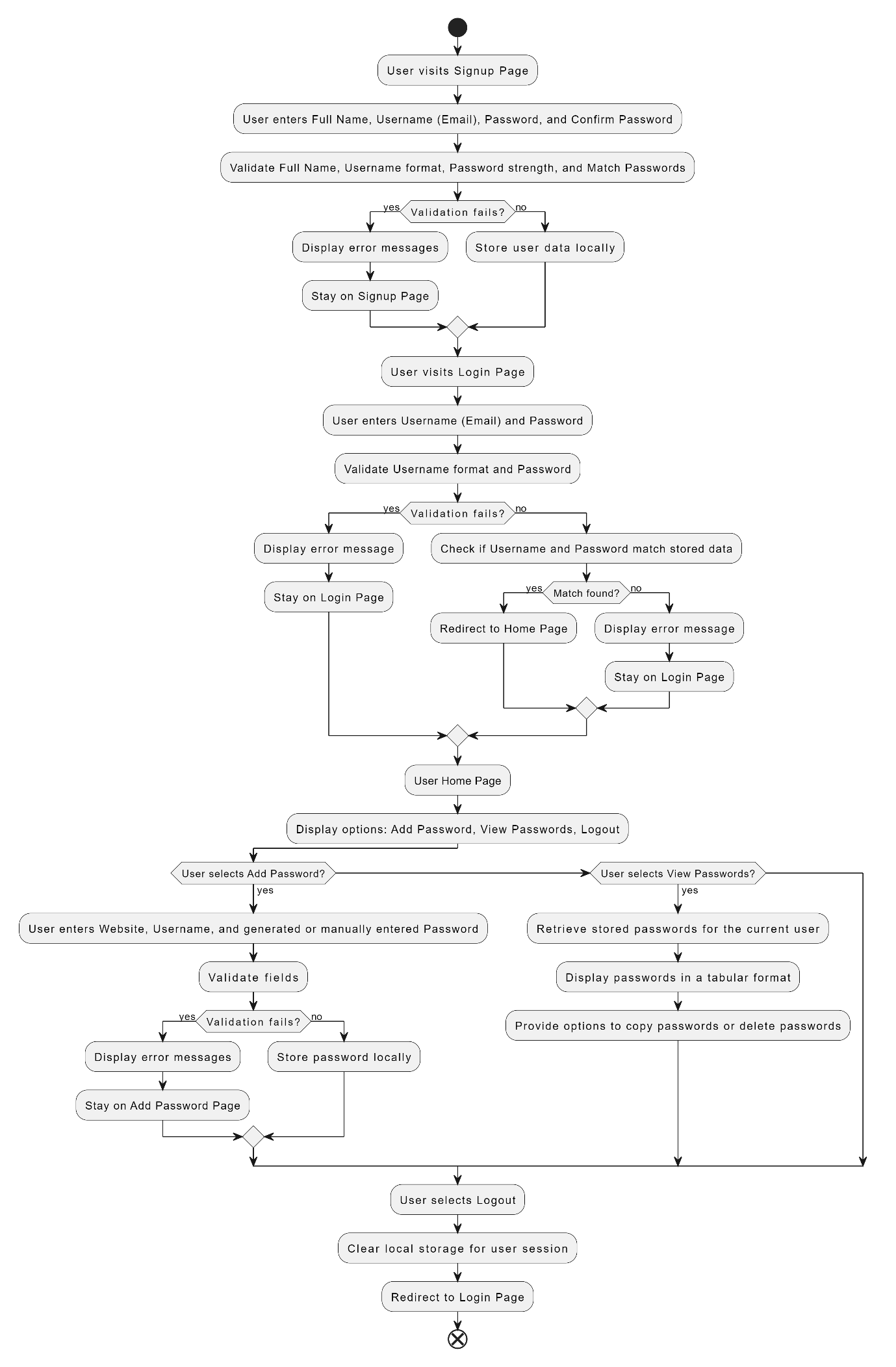


Figure 3.1 Flowchart for Password Manager

**3.1.2 SEQUENCE DIAGRAM**

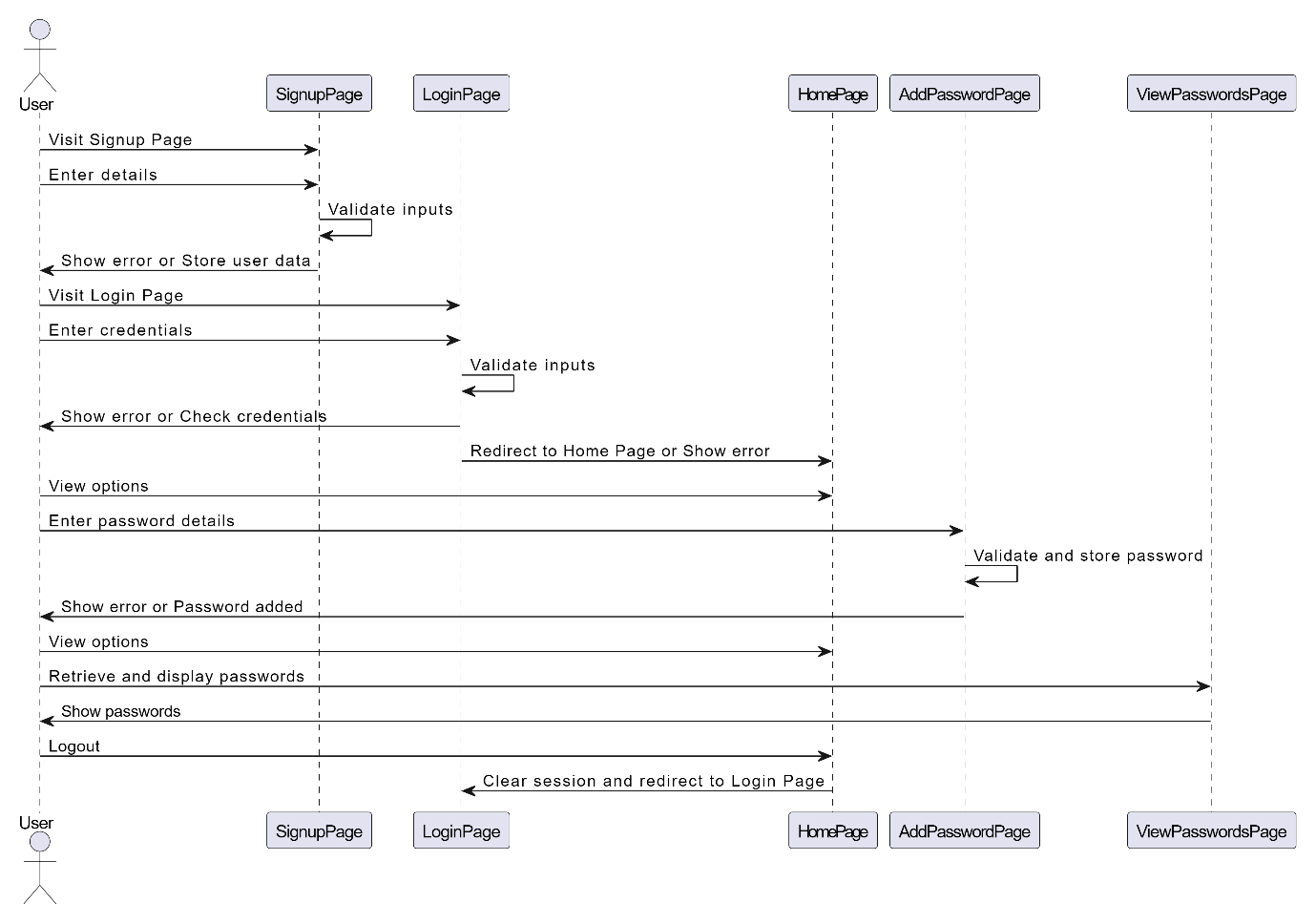


Figure 3.2 Sequence diagram for password manager

**4.RESULTS**

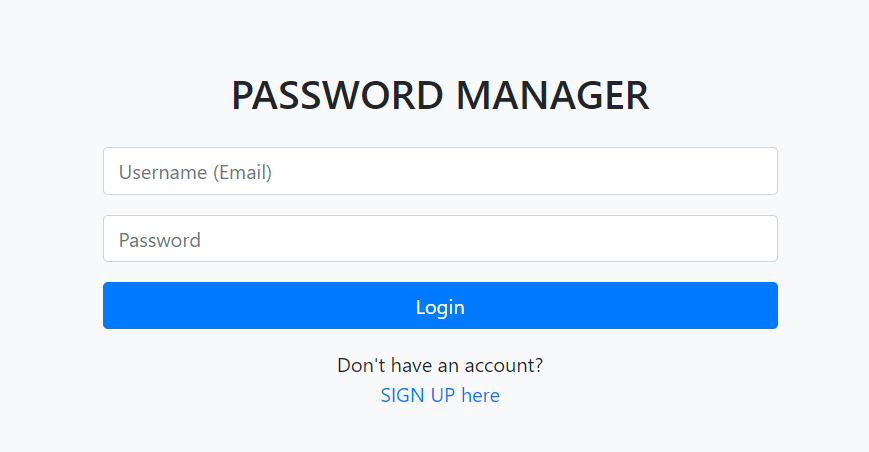
****

Figure 4.1 Login Page

**Figure 4.1** shows the login page that allows users to enter their username and password to access the password manager application.

A simple, clean login form with fields for username and password.

Error messages are displayed if the login credentials are incorrect.

**Functionality:**

* Validates the user input and checks against stored user data in localStorage.
* Displays error messages for incorrect login attempts.

**Output:**

* If the login is successful, the user is redirected to the home.html page.
* If the login fails, an error message is shown below the input fields.

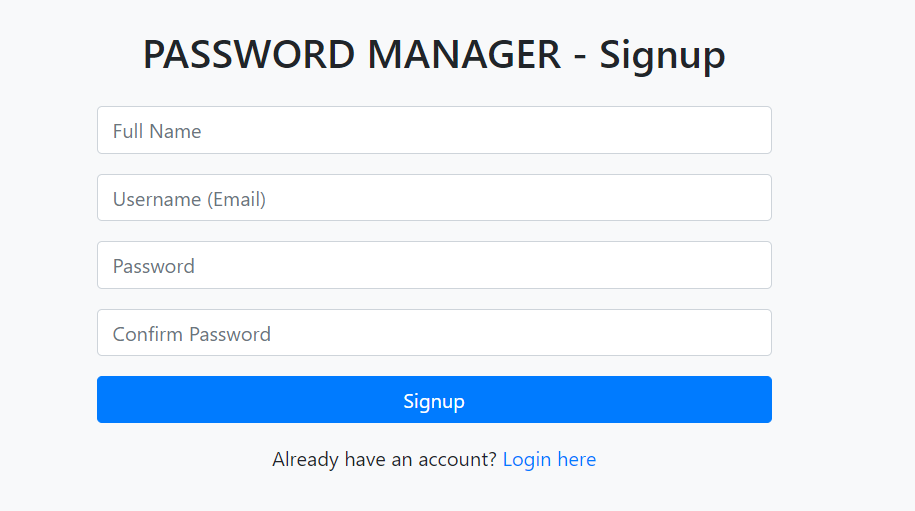
****

Figure 4.2 Signup Page

**Figure 4.2** shows the signup page that allows users to create an account.

A signup form with fields for full name, username (email), password, and confirm password.

Validates the signup form input and checks for existing usernames.

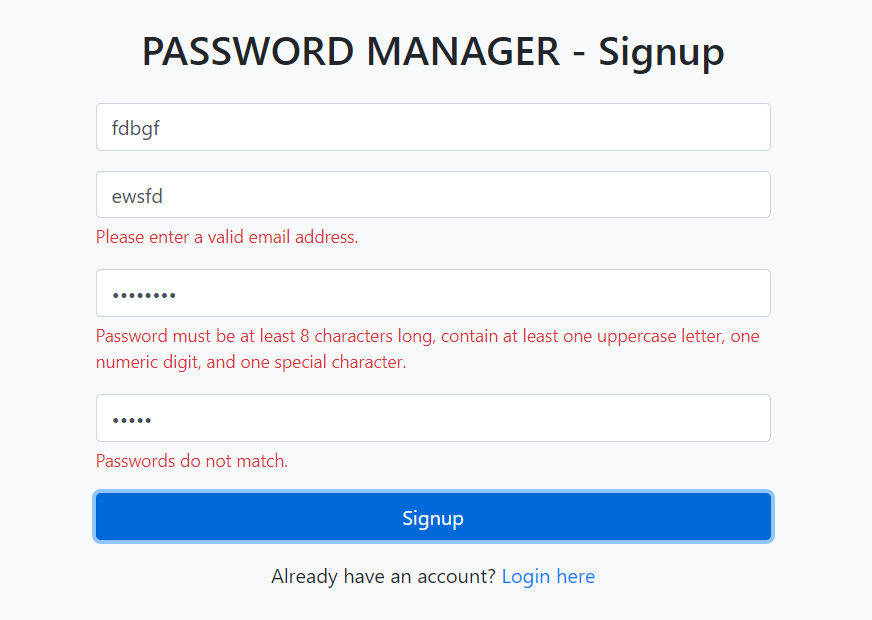


Figure 4.3 Signup Validation

**Figure 4.3** shows the error messages for invalid input or mismatched passwords.

.

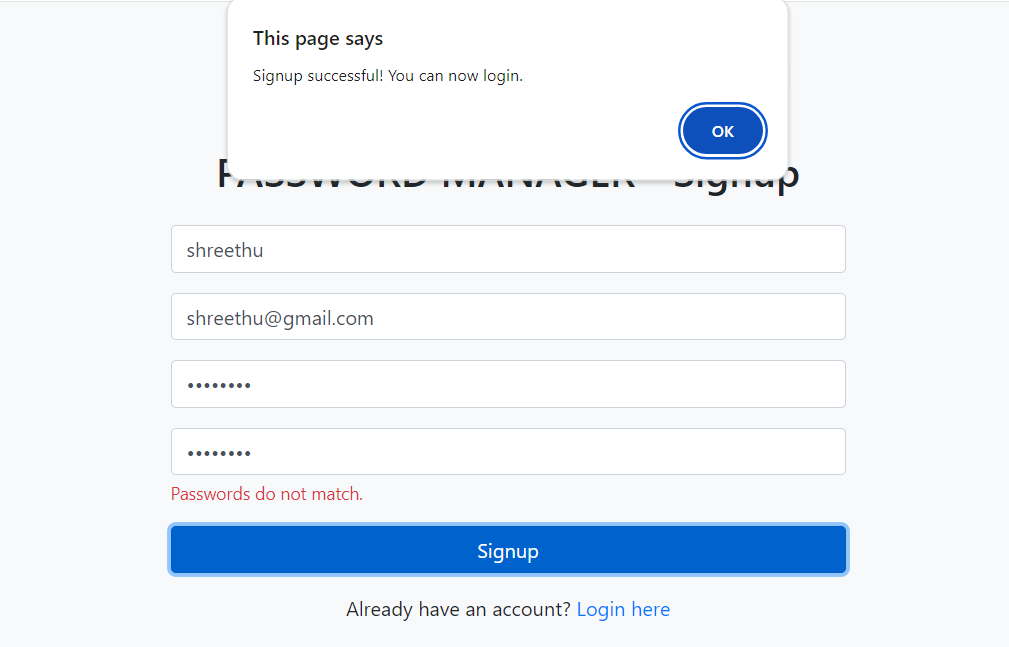


Figure 4.4 Successful Signup

**Figure 4.3** shows that the user successfully signed up and can proceed to the login page.

Saves new user data to localStorage.

A new user account is created and saved.

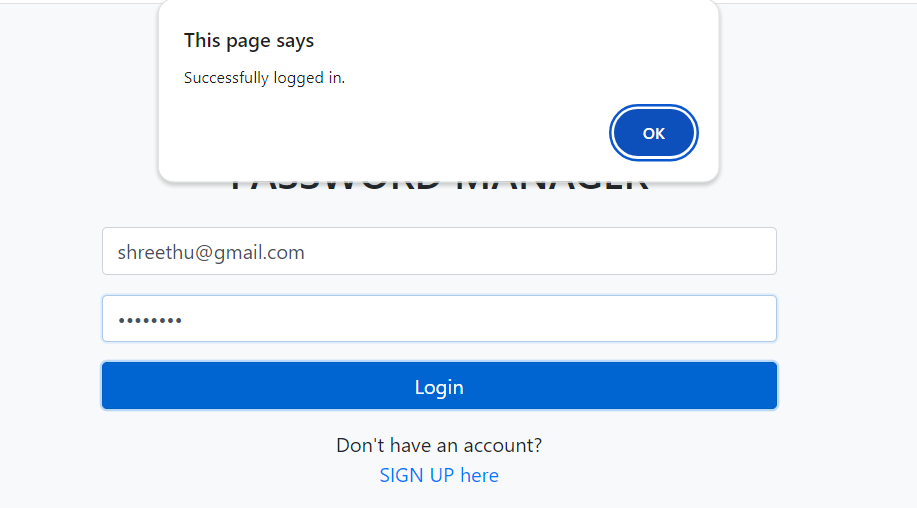


Figure 4.5 Successful Login

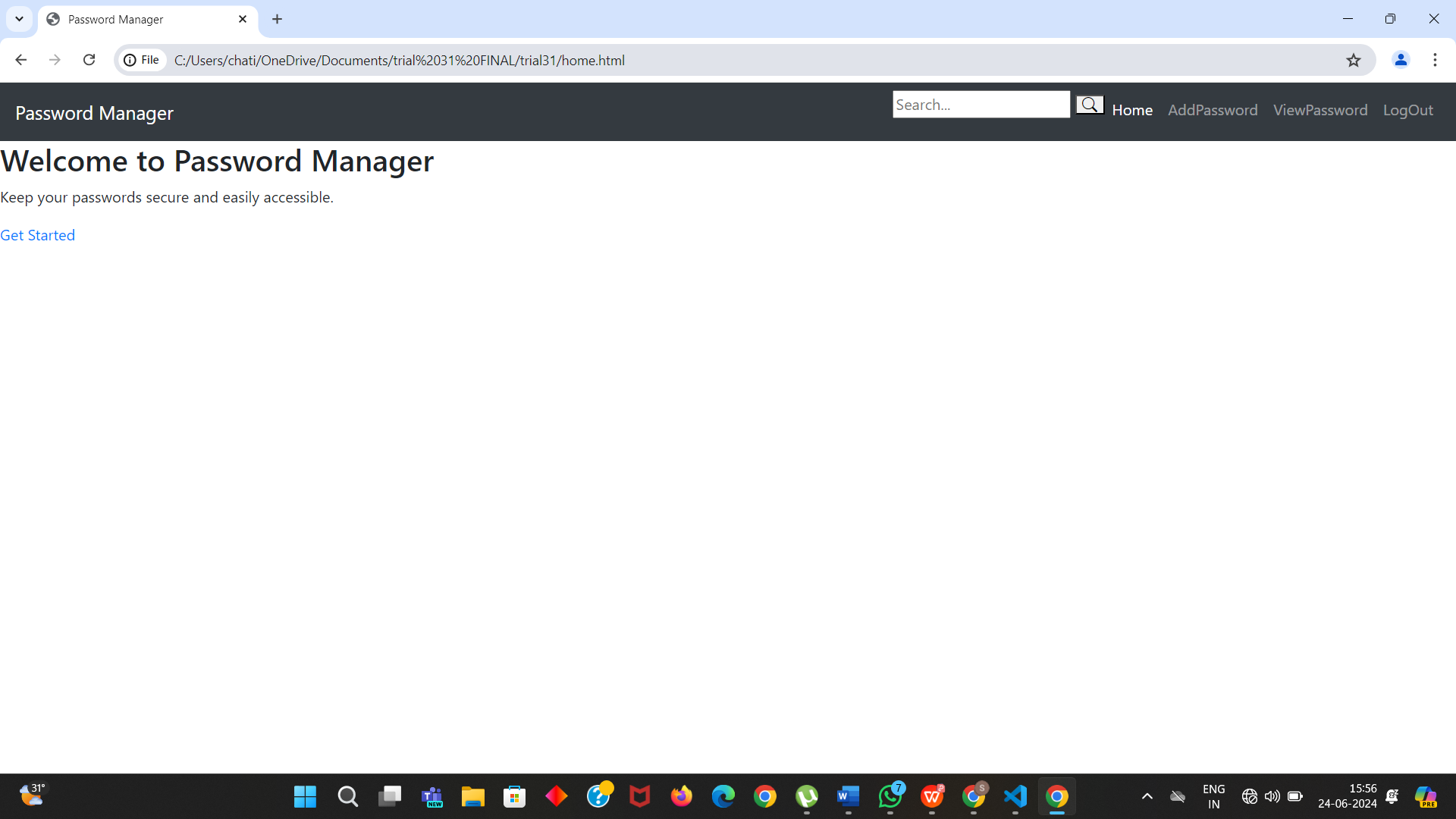


Figure 4.6 Home page

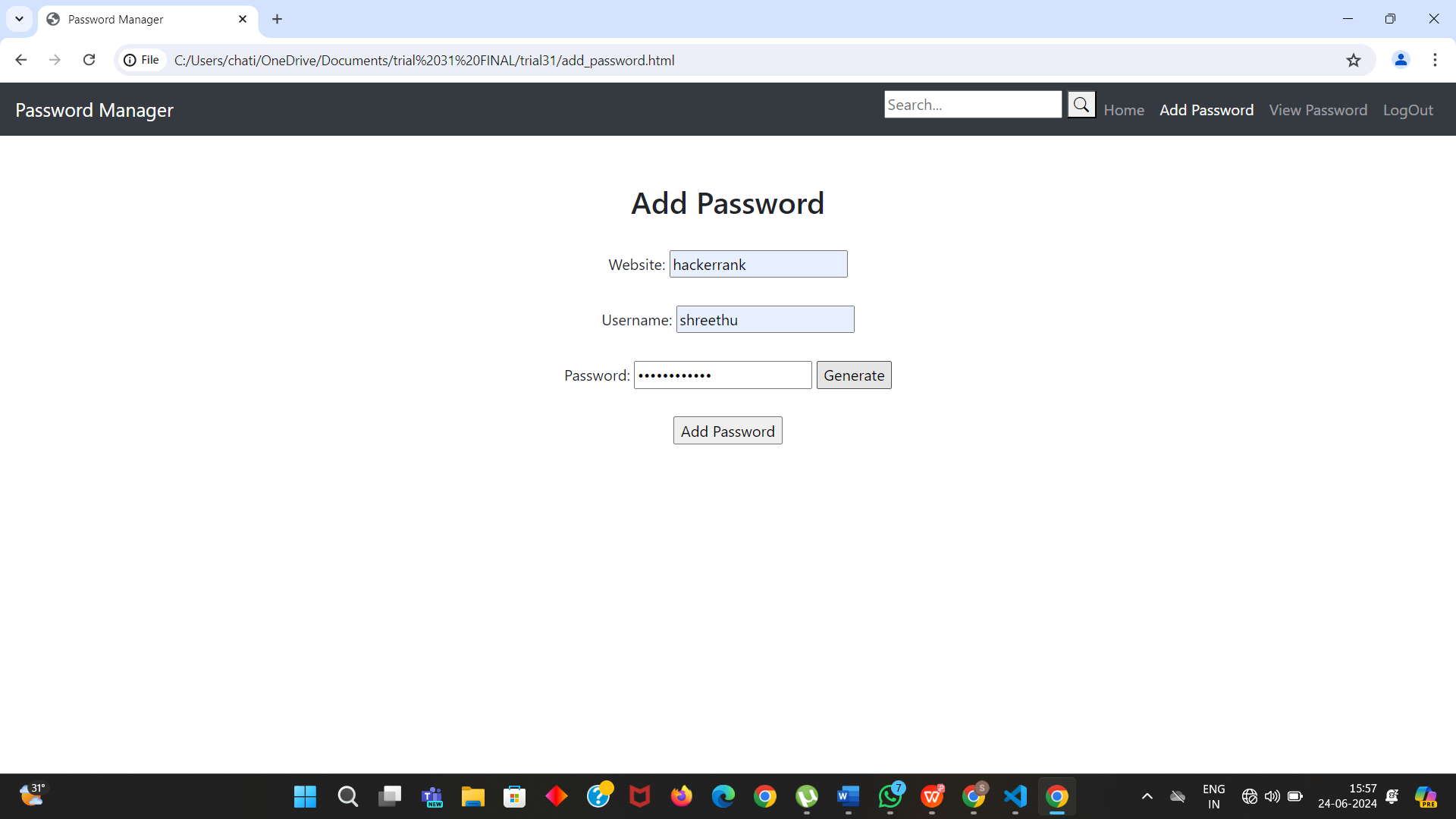


Figure 4.7 Add Password

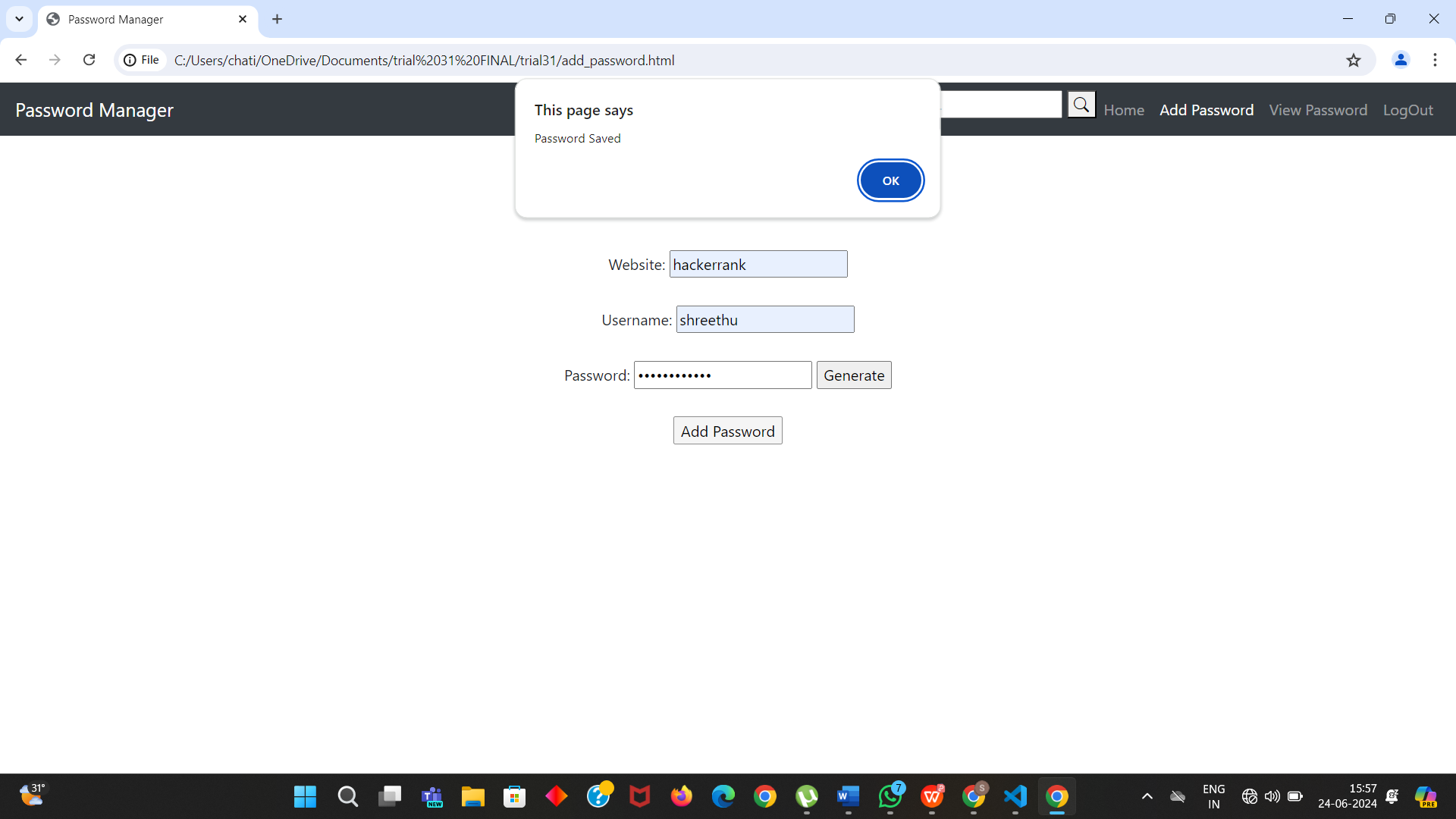


Figure 4.8 Saving of Password

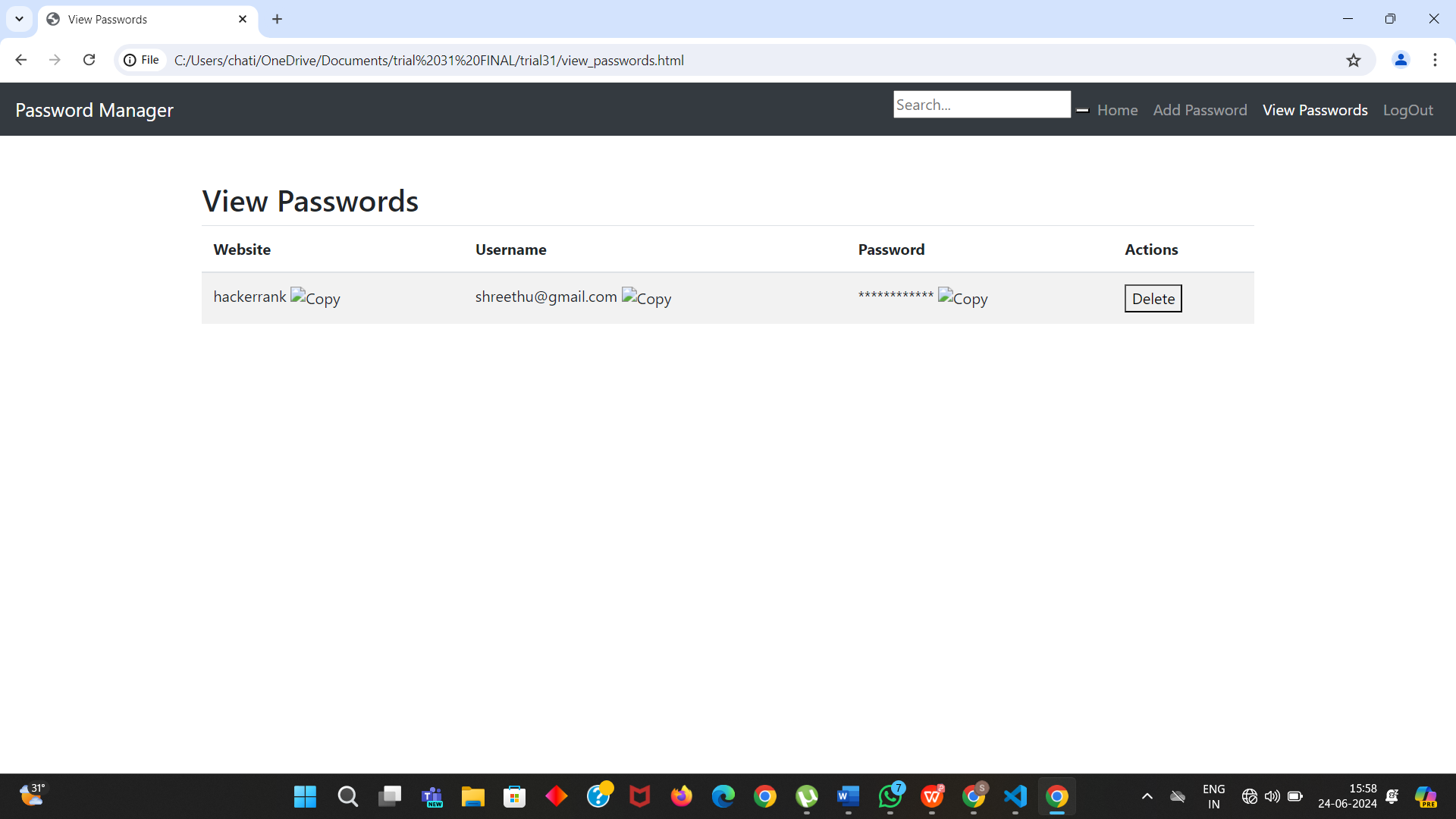


Figure 4.9 View Password

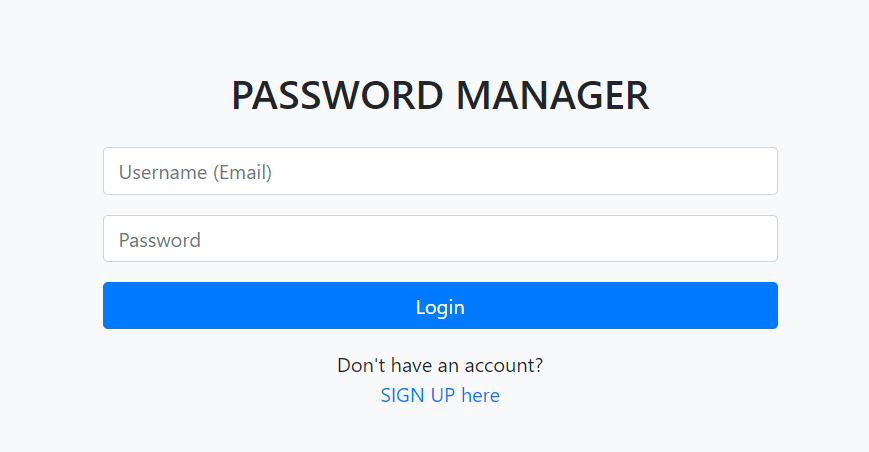
****

Figure 4.10 After LogOut

**5.CONCLUSION AND FUTURE WORK**

**CONCLUSION**

The password manager project has successfully implemented core functionalities for secure password management, user authentication, and intuitive user interfaces. It addresses critical aspects of password security and user convenience, leveraging modern web technologies and best practices.

**KEY ACHIEVEMENTS:**

* **Secure Authentication and Password Management:** Implemented robust login and signup functionalities with validation to ensure secure handling of user credentials. Passwords are securely stored locally using modern encryption techniques.
* **User Interface Design:** Utilized Bootstrap for responsive and user-friendly interfaces, enhancing user experience across different devices and screen sizes.
* **Password Management Features:** Users can securely add, view, and manage passwords within the application. The interface allows for easy copying of passwords and deletion of entries as needed.
* **Local Storage:** Leveraged localStorage for storing user data locally, ensuring persistent user sessions and data availability across browser sessions.

**FUTURE WORK**

1. **Enhanced Security Measures:**
   * **Encryption:** Implement strong encryption algorithms (e.g., AES-256) to encrypt passwords before storing them in local storage, enhancing security against unauthorized access.
   * **HTTPS:** Integrate HTTPS to encrypt data transmitted between the user's browser and the server, preventing interception and tampering of sensitive information.
   * **Password Policies:** Implement policies to enforce strong passwords with a combination of uppercase, lowercase, digits, and special characters. Provide password strength meters to guide users in creating secure passwords.

* **User Profile Management:**
  + **Email Switching:** Allow users to update their email addresses associated with their accounts. Implement validation mechanisms to ensure security and prevent unauthorized changes.
  + **Forgot Password:** Provide a mechanism for users to reset their passwords via email. This includes sending a secure reset link to the user's registered email address and verifying the user's identity before allowing password reset.
* **Additional Security Enhancements:**
  + **Two-Factor Authentication (2FA):** Implement 2FA using methods such as SMS, email, or authenticator apps to add an extra layer of security during login.
  + **Account Lockout:** Implement mechanisms to temporarily lock user accounts after multiple failed login attempts to prevent brute-force attacks.
  + **Security Audits:** Regularly conduct security audits and vulnerability assessments to identify and mitigate potential security risks in the application.
* **User Experience Improvements:**
  + **Responsive Design:** Further optimize the application for seamless user experience across various devices and screen sizes.
  + **Accessibility:** Ensure the application meets accessibility standards, making it usable for all users, including those with disabilities.
  + **User Education:** Provide tips and guidelines within the application to educate users on best practices for password security and data protection.
* **Data Backup and Recovery:**
  + Implement periodic backups of user data to ensure data resilience and availability in case of system failures or data loss incidents.
  + Provide users with options to recover their accounts and passwords securely through self-service mechanisms.

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**APPENDIX**

**index.html**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Login Page</title>

<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

<style>

body {

background-color: #f8f9fa;

}

.login-container {

margin-top: 100px;

}

.error-message {

color: #dc3545;

font-size: 0.875rem;

}

</style>

</head>

<body>

<div class="container">

<div class="row justify-content-center">

<div class="col-md-6 login-container">

<div class="text-center mb-4">

<h2 class="mt-3">PASSWORD MANAGER</h2>

</div>

<form id="loginForm" onsubmit="return validateForm()">

<div class="form-group">

<input type="text" class="form-control" id="username" placeholder="Username (Email)" required>

<small id="usernameError" class="form-text error-message"></small>

</div>

<div class="form-group">

<input type="password" class="form-control" id="password" placeholder="Password" required>

<small id="passwordError" class="form-text error-message"></small>

</div>

<div class="form-group">

<button type="submit" class="btn btn-primary btn-block">Login</button>

</div>

<div class="form-group text-center">

<p>Don't have an account? <a href="signup.html"><br>SIGN UP here</a></p>

</div>

</form>

</div>

</div>

</div>

<!-- jQuery and Bootstrap JS -->

<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>

<script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.5.4/dist/umd/popper.min.js"></script>

<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>

<script>

function validateForm() {

event.preventDefault();

var username = document.getElementById('username').value;

var password = document.getElementById('password').value;

var emailRegex = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;

var isValid = true;

// Validate username

if (!emailRegex.test(username)) {

document.getElementById('usernameError').textContent = "Please enter a valid email address.";

isValid = false;

} else {

document.getElementById('usernameError').textContent = "";

}

if (isValid) {

let users = localStorage.getItem('users');

users = users ? JSON.parse(users) : [];

let user = users.find(user => user.username === username && user.password === password);

if (user) {

alert("Successfully logged in.");

localStorage.setItem('loggedInUser', JSON.stringify(user));

window.location.href = "home.html";

} else {

document.getElementById('passwordError').textContent = "Invalid username or password.";

}

}

return isValid;

}

</script>

</body>

</html>

**Signup.html**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Signup Page</title>

<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

<style>

body {

background-color: #f8f9fa;

}

.signup-container {

margin-top: 100px;

}

.error-message {

color: #dc3545;

font-size: 0.875rem;

}

</style>

</head>

<body>

<div class="container">

<div class="row justify-content-center">

<div class="col-md-6 signup-container">

<div class="text-center mb-4">

<h2 class="mt-3">PASSWORD MANAGER - Signup</h2>

</div>

<form id="signupForm" onsubmit="return validateForm(event)">

<div class="form-group">

<input type="text" class="form-control" id="fullname" name="fullname" placeholder="Full Name" required>

<small id="fullnameError" class="form-text error-message"></small>

</div>

<div class="form-group">

<input type="text" class="form-control" id="username" name="username" placeholder="Username (Email)" required>

<small id="usernameError" class="form-text error-message"></small>

</div>

<div class="form-group">

<input type="password" class="form-control" id="password" name="password" placeholder="Password" required>

<small id="passwordError" class="form-text error-message"></small>

</div>

<div class="form-group">

<input type="password" class="form-control" id="confirmPassword" name="confirmPassword" placeholder="Confirm Password" required>

<small id="confirmPasswordError" class="form-text error-message"></small>

</div>

<div class="form-group">

<button type="submit" class="btn btn-primary btn-block">Signup</button>

</div>

<div class="form-group text-center">

<p>Already have an account? <a href="index.html">Login here</a></p>

</div>

</form>

</div>

</div>

</div>

<!-- jQuery and Bootstrap JS -->

<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>

<script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.5.4/dist/umd/popper.min.js"></script>

<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>

<script>

function validateForm(event) {

event.preventDefault();

var fullname = document.getElementById('fullname').value;

var username = document.getElementById('username').value;

var password = document.getElementById('password').value;

var confirmPassword = document.getElementById('confirmPassword').value;

var emailRegex = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;

var passwordRegex = /^(?=.[A-Z])(?=.[0-9])(?=.[!@#$%^&])(?=.{8,})/;

var isValid = true;

if (fullname.trim() === "") {

document.getElementById('fullnameError').textContent = "Please enter your full name.";

isValid = false;

} else {

document.getElementById('fullnameError').textContent = "";

}

if (!emailRegex.test(username)) {

document.getElementById('usernameError').textContent = "Please enter a valid email address.";

isValid = false;

} else {

document.getElementById('usernameError').textContent = "";

}

if (!passwordRegex.test(password)) {

document.getElementById('passwordError').textContent = "Password must be at least 8 characters long, contain at least one uppercase letter, one numeric digit, and one special character.";

isValid = false;

} else {

document.getElementById('passwordError').textContent = "";

}

if (confirmPassword !== password) {

document.getElementById('confirmPasswordError').textContent = "Passwords do not match.";

isValid = false;

} else {

document.getElementById('confirmPasswordError').textContent = "";

}

if (isValid) {

let users = localStorage.getItem('users');

users = users ? JSON.parse(users) : [];

// Check if the username already exists

if (users.some(user => user.username === username)) {

alert("Username already exists. Please use a different email.");

return false;

}

users.push({ fullname, username, password });

localStorage.setItem('users', JSON.stringify(users));

alert("Signup successful! You can now login.");

window.location.href = 'index.html';

}

return false;

}

</script>

</body>

</html>

**index1.html**

<html>

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Password Manager</title>

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

<link href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.7.2/font/bootstrap-icons.css" rel="stylesheet">

<style>

.logo img {

height: 50px; /\* Adjust the height of the logo as needed \*/

vertical-align: middle;

}

</style>

</head>

<body>

<header>

<nav class="navbar navbar-expand-lg navbar-dark bg-dark">

<a class="navbar-brand" href="#">Password Manager</a>

<button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

<span class="navbar-toggler-icon"></span>

</button>

<div class="collapse navbar-collapse" id="navbarSupportedContent">

<ul class="navbar-nav ml-auto">

<li>

<form action="/search" method="GET">

<input type="text" placeholder="Search..." name="q">

<button type="submit"><i class="bi bi-search"></i></button>

</form>

</li>

<li class="nav-item active">

<a class="nav-link" href="home.html">Home <span class="sr-only">(current)</span></a>

</li>

<li class="nav-item">

<a class="nav-link" href="add\_password.html">AddPassword</a>

</li>

<li class="nav-item">

<a class="nav-link" href="view\_passwords.html">ViewPassword</a>

</li>

<li class="nav-item">

<a class="nav-link" href="index.html">LogOut</a>

</li>

</ul>

</div>

</nav>

</header>

<main>

<section class="hero">

<h2>Welcome to Password Manager</h2>

<p>Keep your passwords secure and easily accessible.</p>

<a href="add\_password.html" class="cta">Get Started</a>

</section>

</main>

<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

<script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"></script>

<script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>

<script src="script.js"></script>

</body>

</html>

**home.html**

<html>

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Password Manager</title>

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

<link href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.7.2/font/bootstrap-icons.css" rel="stylesheet">

<style>

.logo img {

height: 30px; /\* Adjust the height of the logo as needed \*/

vertical-align: middle;

}

</style>

</head>

<body>

<header>

<nav class="navbar navbar-expand-lg navbar-dark bg-dark">

<a class="navbar-brand" href="#">Password Manager</a>

<button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

<span class="navbar-toggler-icon"></span>

</button>

<div class="collapse navbar-collapse" id="navbarSupportedContent">

<ul class="navbar-nav ml-auto">

<li>

<form action="/search" method="GET">

<input type="text" placeholder="Search..." name="q">

<button type="submit"><i class="bi bi-search"></i></button>

</form>

</li>

<li class="nav-item active">

<a class="nav-link" href="home.html">Home <span class="sr-only">(current)</span></a>

</li>

<li class="nav-item">

<a class="nav-link" href="add\_password.html">AddPassword</a>

</li>

<li class="nav-item">

<a class="nav-link" href="view\_passwords.html">ViewPassword</a>

</li>

<li class="nav-item">

<a class="nav-link" href="index.html">LogOut</a>

</li>

</ul>

</div>

</nav>

</header>

<main>

<section class="hero">

<h2>Welcome to Password Manager</h2>

<p>Keep your passwords secure and easily accessible.</p>

<a href="add\_password.html" class="cta">Get Started</a>

</section>

</main>

<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

<script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"></script>

<script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>

</body>

</html>

**add\_password.html**

<!DOCTYPE html>

<html>

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Password Manager</title>

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

<link href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.7.2/font/bootstrap-icons.css" rel="stylesheet">

<style>

.logo img {

height: 30px;

vertical-align: middle;

}

.hero {

text-align: center;

padding: 50px

}

</style>

</head>

<body>

<header>

<nav class="navbar navbar-expand-lg navbar-dark bg-dark">

<a class="navbar-brand" href="#">Password Manager</a>

<button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

<span class="navbar-toggler-icon"></span>

</button>

<div class="collapse navbar-collapse" id="navbarSupportedContent">

<ul class="navbar-nav ml-auto">

<li>

<form action="/search" method="GET">

<input type="text" placeholder="Search..." name="q">

<button type="submit"><i class="bi bi-search"></i></button>

</form>

</li>

<li class="nav-item">

<a class="nav-link" href="home.html">Home</a>

</li>

<li class="nav-item active">

<a class="nav-link" href="add\_password.html">Add Password<span class="sr-only">(current)</span></a>

</li>

<li class="nav-item">

<a class="nav-link" href="view\_passwords.html">View Password</a>

</li>

<li class="nav-item">

<a class="nav-link" href="index.html">LogOut</a>

</li>

</ul>

</div>

</nav>

</header>

<main>

<section class="hero">

<div class="container">

<h2>Add Password</h2><br>

<form method="POST" id="passwordForm">

<label for="website">Website:</label>

<input type="text" name="website" id="website" required><br><br>

<label for="username">Username:</label>

<input type="text" name="username" id="username" required><br><br>

<label for="password">Password:</label>

<input type="password" name="password" id="password" required>

<input type="button" value="Generate" onclick="generatePassword(12)"><br><br>

<input type="submit" value="Add Password">

</form>

</div>

</section>

</main>

<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

<script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"></script>

<script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>

<script src="script.js"></script>

</body>

</html>

**generate\_password**

function generatePassword(length) {

var result = '';

var characters =

'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789!@#$%^&\*()\_+';

var charactersLength = characters.length;

for ( var i = 0; i < length; i++ ) {

result += characters.charAt(Math.floor(Math.random() \*

charactersLength));

}

document.getElementById("password").value = result;

}

**add\_passwords.html**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>View Passwords </title>

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

<style>

.logo img {

height: 30px;

vertical-align: middle;

}

</style>

</head>

<body>

<header>

<nav class="navbar navbar-expand-lg navbar-dark bg-dark">

<a class="navbar-brand" href="#">Password Manager</a>

<button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarSupportedContent"

aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

<span class="navbar-toggler-icon"></span>

</button>

<div class="collapse navbar-collapse" id="navbarSupportedContent">

<ul class="navbar-nav ml-auto">

<li>

<form action="/search" method="GET">

<input type="text" placeholder="Search..." name="q">

<button type="submit"><i class="bi bi-search"></i></button>

</form>

</li>

<li class="nav-item">

<a class="nav-link" href="home.html">Home</a>

</li>

<li class="nav-item">

<a class="nav-link" href="add\_password.html">Add Password</a>

</li>

<li class="nav-item active">

<a class="nav-link" href="view\_passwords.html">View Passwords<span class="sr-only">(current)</span></a>

</li>

<li class="nav-item">

<a class="nav-link" href="index.html">LogOut</a>

</li>

</ul>

</div>

</nav>

</header>

<main>

<section class="container mt-5">

<h2>View Passwords</h2>

<table class="table table-striped">

<thead>

<tr>

<th>Website</th>

<th>Username</th>

<th>Password</th>

<th>Actions</th>

</tr>

</thead>

<tbody>

<!-- Password rows will be dynamically inserted here -->

</tbody>

</table>

</section>

</main>

<script src="script.js"></script>

</body>

</html>

**Script.js**

function maskPassword(pass) {

return "\*".repeat(pass.length);

}

function copyText(txt) {

navigator.clipboard.writeText(txt).then(

() => {

alert("Copied to clipboard");

},

() => {

alert("Clipboard copying failed");

},

);

}

const deletePassword = (website) => {

let data = localStorage.getItem("passwords");

let currentUser = JSON.parse(localStorage.getItem("loggedInUser"));

if (data && currentUser) {

let arr = JSON.parse(data);

let arrUpdated = arr.filter((e) => e.website !== website || e.username !== currentUser.username);

localStorage.setItem("passwords", JSON.stringify(arrUpdated));

alert(Successfully deleted ${website}'s password);

showPasswords();

}

}

const showPasswords = () => {

let tb = document.querySelector("table tbody");

tb.innerHTML = ""; // Clear existing table rows

let data = localStorage.getItem("passwords");

let currentUser = JSON.parse(localStorage.getItem("loggedInUser"));

if (!data || JSON.parse(data).length === 0) {

tb.innerHTML += "<tr><td colspan='4'>No Data To Show</td></tr>";

} else {

let arr = JSON.parse(data);

let userPasswords = arr.filter(element => element.username === currentUser.username);

if (userPasswords.length === 0) {

tb.innerHTML += "<tr><td colspan='4'>No Data To Show</td></tr>";

} else {

let str = "";

userPasswords.forEach((element) => {

str += `<tr>

<td>${element.website} <img onclick="copyText('${element.website}')" src="./copy.svg" alt="Copy" width="10" height="10"></td>

<td>${element.username} <img onclick="copyText('${element.username}')" src="./copy.svg" alt="Copy" width="10" height="10"></td>

<td>${maskPassword(element.password)} <img onclick="copyText('${element.password}')" src="./copy.svg" alt="Copy" width="10" height="10"></td>

<td><button class="btnsm" onclick="deletePassword('${element.website}')">Delete</button></td>

</tr>`;

});

tb.innerHTML += str;

}

}

}

function generatePassword(length) {

let result = '';

const characters = 'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789!@#$%^&\*()\_+';

for (let i = 0; i < length; i++) {

result += characters.charAt(Math.floor(Math.random() \* characters.length));

}

document.getElementById("password").value = result;

}

document.addEventListener("DOMContentLoaded", () => {

if (document.getElementById("passwordForm")) {

document.getElementById("passwordForm").addEventListener("submit", (e) => {

e.preventDefault();

let website = document.getElementById("website").value;

let loggedInUser = JSON.parse(localStorage.getItem("loggedInUser"));

let username = loggedInUser.username;

let password = document.getElementById("password").value;

let passwords = localStorage.getItem("passwords");

let json = passwords ? JSON.parse(passwords) : [];

json.push({ website: website, username: username, password: password });

alert("Password Saved");

localStorage.setItem("passwords", JSON.stringify(json));

document.getElementById("passwordForm").reset();

});

}

if (document.querySelector("table")) {

showPasswords();

}

});

**Style.css**

@import url('https://fonts.googleapis.com/css2?family=Noto+Sans:ital,wght@0,700;1,300&family=Poppins:wght@300;400;600&display=swap');

\* {

margin: 0;

padding: 0;

font-family: 'Noto Sans', sans-serif;

font-family: 'Poppins', sans-serif;

}

nav {

background-color: black;

color: white;

padding: 12px 3px;

display: flex;

justify-content: space-between;

}

.logo {

margin: 0 23px;

font-weight: 800;

font-size: 25px;

cursor: pointer;

}

ul {

display: flex;

margin: 0 23px;

align-items: center;

}

ul > li {

list-style: none;

margin: 0 13px;

cursor: pointer;

}

ul > li:hover {

color: white;

}

table, td, tr {

border: 2px solid black;

border-collapse: collapse;

padding: 5px 13px;

}

.container {

max-width: 80vw;

margin: 23px auto;

}

h1, h2, h3 {

margin: 23px 0;

}

.btn {

padding: 8px 17px;

background: black;

color: white;

font-weight: 900;

border: 2px solid gray;

border-radius: 8px;

margin: 25px 0;

cursor: pointer;

}

.btnsm {

padding: 8px 17px;

background: black;

color: white;

font-weight: 900;

border: 2px solid gray;

border-radius: 8px;

cursor: pointer;

}

img {

cursor: pointer;

position: relative;

bottom: 7px;

width: 15px;

height: 13px;

}

#alert {

display: none;

}