Password Manager

Intro

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Members:

Andrew, Cameron, Jagger, Montana, Tristen, Carson, Miguel, Dakota, Chhavi, Sai

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Software Demonstration
Reflection

Team Organization

Team Organization

Followed the **Agile methodology** to enable iterative development. We utilized sprints to meet at least once a week to keep us on track.

Tools Used:

- Wt Framework: Web application development.
- **SQLite:** Secure data storage.
- **OpenBSD:** Hosting for high security.

Training:

- Basics of the Wt framework.
- Writing secure SQL queries.
- Web application security practices.
- Version Control

Sub-Teams

 Model Team - Jagger, Carson, Cameron, Chavi, Andrew

Carson

- 2) <u>View Team</u> Jagger, Montana, Miguel, Sai, Cameron, Carson, Chavi, Tristen
- 3) <u>Database Team</u> Andrew, Dakota, Tristen, Cameron, Sai
- 4) <u>Test Team</u> Dakota, Miguel, Tristen, Montana, Carson
- 5) Merge Team Andrew, Cameron, Jagger

Software Requirements

Miguel, Sai

Osername:

Account

Password:

Purpose

The **Shared Password Manager System** helps users simplify password management by securely storing and organizing their credentials in one convenient place, allowing easy access whenever needed.

Key Objectives:

- Admin Control: Admin users manage user accounts and roles.
- Role-Based Features: Users have distinct permissions based on their roles, ensuring secure and efficient access.
- **Focus on Security**: Implements encryption and secure access protocols to protect sensitive data.

Software Requirements

Store user credentials securely with role-based access.

Functional requirements:

1. Privilege Separation

- Admin can manage users.
- Regular users can view, add, and edit credentials.
- View-only users can only view credentials.

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Non-Functional Requirements:

2. Security Measures

- Daily backups and minimal database access privileges for data protection.
- Implemented AES encryption for all data transfers and password storage.

3. Performance

- System uptime goal of 99.99%.
- Maximum 2-second response time.
- Manages multiple user actions simultaneously

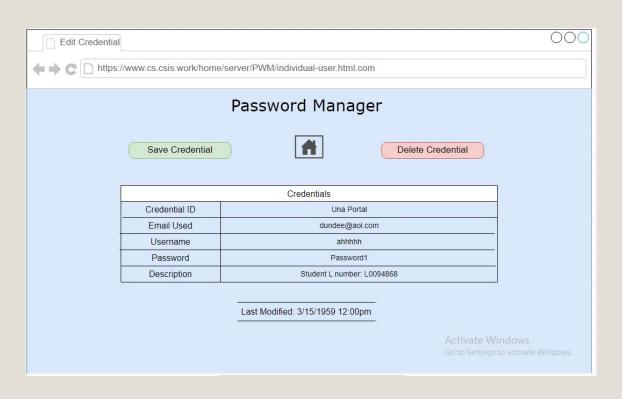


Password Manager	Add Credential	Edit Credential	Q Search Credential	Manage Users	Logout
	Creder	ntials			
Last	Modified	ID Nar	ne		
10/22	/24 5:00pm	Google D	rive		

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Dakota, carson

Dakota, carson

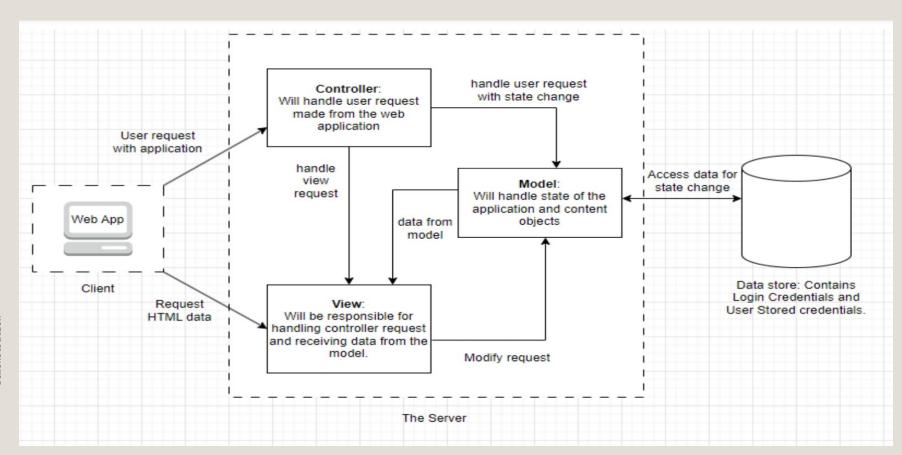


Software Design

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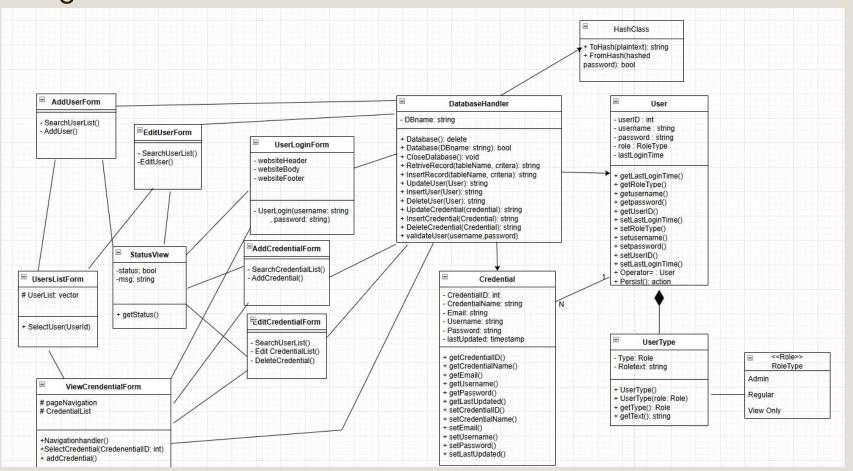
Jagger

MVC ARCHITECTURE DIAGRAM



Del

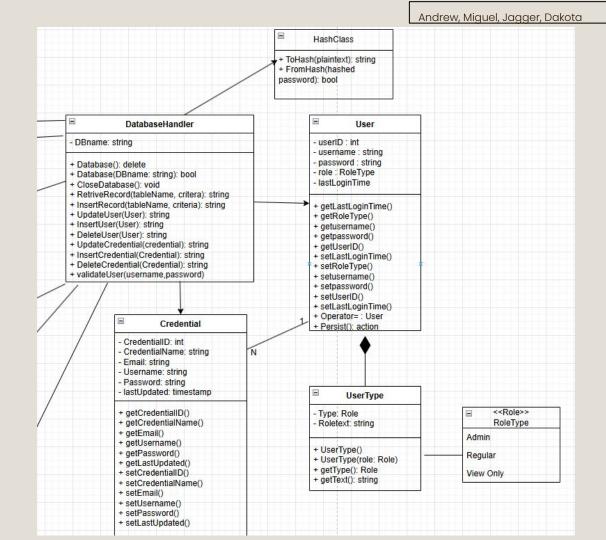
Design Overview:



Jagger, Andrew, Montana

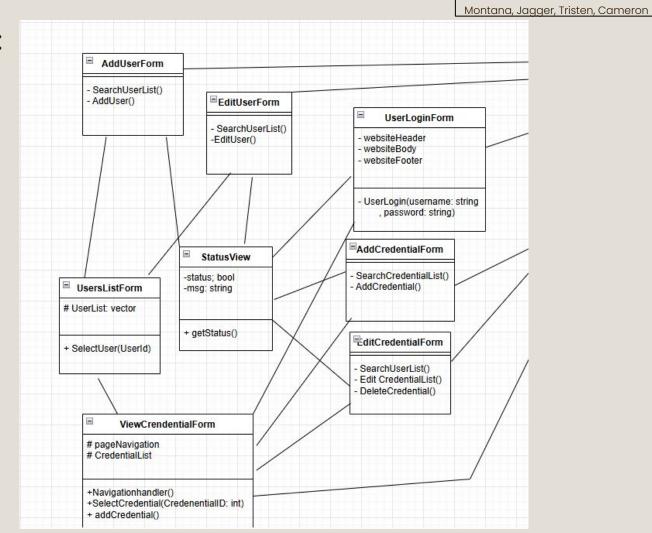
Model Breakdown:

- How it works?
- ModelControl
- Design decisions



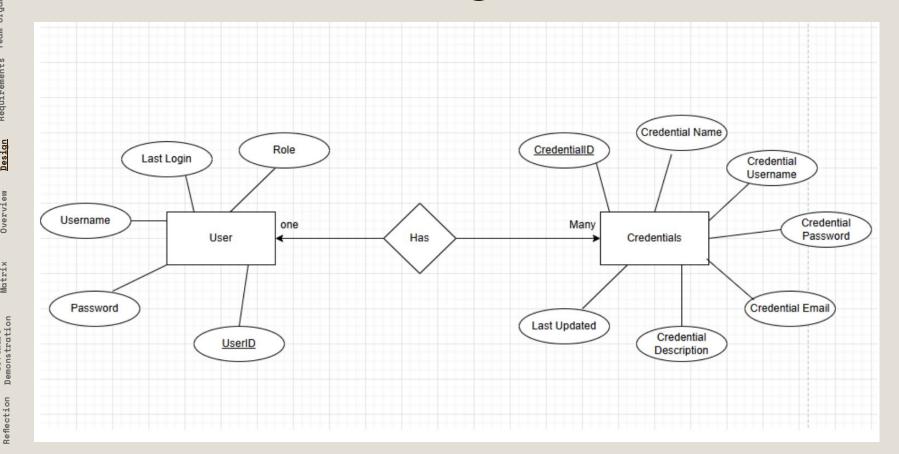
View Breakdown:

- How it works?
- App driver



E/R Diagram

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Test Overview

Model Unit Test Results

All unit tests were conducted with gtest

User Class Tests	Constructor And Getters	M1	This test shall test the Constructors and the Getter functions of the User Class	Pass
	Update Last Login	M2	This test shall test the UpdateLastLogin function of the User Class	Pass
	Operator M3		This test shall test the overloaded operator of the User Class	Pass
UserType Class Tests	Constructor And Getters	M4	This test shall test the Constructors and the Getter functions of the UserType Class	Pass

Model Unit Test Results

Credential Class	Constructor And Getters	M5	This test shall test the Constructor and Getter functions of the Credential Class	Pass
Tests	Update Last Updated	M6	This test shall test the UpdateLastUpdated function of the Credential Class	Pass
	Setters	M7	This test shall test the Setter functions of the Credential Class	Pass
Database Tests	Constructor	M8	This test shall test the Constructor for the Database	Pass
resis	Insert Record	M9	This test shall test the InsertRecord function for the Database	Pass
	Retrieve Record	M10	This test shall test the RetrieveRecord function for the Database	Pass
	Update Record	M11	This test shall test the UpdateRecord function for the Database	Pass
	Delete Record	M12	This test shall test the DeleteRecord function for the Database	Pass

Produce

Different Hashes

Model Unit Test Results

Hash Class	To Hash Returns Correct Hash	M13	This test shall test the ToHash function of the HashClass	Pass
Tests	From Hash Validates Correctly	M14	This test shall test the FromHash function of the HashClass, for a correct password entry	Pass
	From Hash Fails On Incorrect Password	M15	This test shall test the FromHash function of the HashClass, for an incorrect password entry	Pass
	To Hash Different Passwords	M16	This test shall test the ToHash function of the HashClass, ensuring each password receives a unique hash.	Pass

|raceability | Matrix

View Unit Test Results

	addCredView Features	Tester ~	Viewer -	What the code does	Expected output	Actual Ouput 🔻	Pass/Fail
10				Click and type in the fields and		You can click	
/ Ö.	addCred Fields(ID,username,password,email,			displays specific field	You can click and	and type in the	
	Crediential Name, description)	Dakota	Sai, Carson	(ID, username, and password)	type in the field	field	Р
	Add button	Dakota	Sai, Carson	The add button is clickable	clickable button	clickable button	Р
V9.	Cancel button	Dakota	Sai, Carson	The cancel button is clickable	clickable button	clickable button	Р

	SearchCredential Features	Tester	Viewer V	What the code does	Expected output	Actual Ouput	Pass/Fail ▼
/10.	SearchCredential Fields(ID,username,password,email,		Carson,Da	Click on SearchCredential and displays all fields involved for	Display all of the fields and let you	Fields are displayed and le	t
	Crediential Name)	Sai	kota	searching a credential	type in them	you type in them	
/11 .	Search button	Sai	Carson, Dakota	The search button is clickable	clickable button	clickable button	Р
/12	Cancel button	Sai	Carson, Dakota	The cancel button is clickable	clickable button	clickable button	Р

View Unit Test Results

	SearchUser Features 🔻	▼ Tester ▼	Viewer 💌	What the code does	Expected output	Actual Ouput	Pass/Fail 🕶
	SearchUser Fields(ID,username,password,userType)	Carson	Dakota, Sai	Click on SearchUser and displays all fields involved for searching a i user	Display all of the fields and let you type in them	Fields are displayed and let you type in them	
	Search button	Carson	Dakota, Sai	i The search button is clickable	clickable button	clickable button	P
′16.	Cancel button	Carson	Dakota, Sai	The cancel button is clickable	clickable button	clickable button	P

	EditCredView Features	▼ Tester ▼	Viewer	What the code does	Expected output	Actual Ouput *	Pass/Fail
V17.			20	Click and type in the fields and displays specific field		You can click	37-3
	EditCredFields(ID,username,password,email,			(ID, username, password, email,	You can click and	and type in the	
	Crediential Name, description)	Dakota	Carson	Crediential Name, description)	type in the field	field	P
V18.	Edit button	Dakota	Carson	The edit button is clickable	clickable button	clickable button	P
V19.	Cancel button	Dakota	Carson	The cancel button is clickable	clickable button	clickable button	P
V20.	Delete button	Dakota	Carson	The delete button is clickable	clickable button	clickable button	P

View Unit Test Results

addUserView Feature	▼ Tester ▼	Viewer ~	What the code does	Expected output	Actual Ouput	Pass/Fai
Cancel button	Carson	Sai, Dakota	The cancel button is clickable	clickable button	clickable button	Р
Add button	Carson	Sai, Dakota	The add button is clickable	clickable button	clickable button	Р
					clickable	
			clicking the dropdown arrow	clickable dropdown	dropdown that	
			displays the following clickable	that displays user	displays user	
Drop down fields (user type)	Carson	Sai, Dakota	fields: Admin, regular, view-only	type options	type options	P
			Click and type in the fields and		You can click	
			displays specific field	You can click and	and type in the	
addUser fields: ID,Username,Password	Carson	Sai, Dakota	(ID, username, and password)	type in the field	field	Р

Integration Test Results

IT 1.

IT 2.

Integration: Login Screen 💟 1	rester v	Viewer ~	What the code does	Expected output	Actual Ouput	Pass/Fail
ogin screen with username		Sai, Carson	Enter the username and password for your account and get signed in. Be sent to the home screen	Sign in successful	Sign in was successful	P
Login screen with username and password that are incorrect	Dakota	Sai, Carson	Enter the username and password for your account and get signed in. Be sent to the home screen	Error message saying you can't be signed in	Invalid Login	Р

IT 3.

Integration: Log Out	Tester	Viewer	What the code does	Expected output	Actual Ouput	Pass/Fail
24-2-14-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-				You can click the button	Button clicks and you get	
		Sai,	Clicking the logout button logs you out and	and get taken back to the	taken back to the login	
Log out button	Dakota	Carson	takes you back to the login page	login screen	screen	P

Reflection Demonstr

Integration Test Results

IT 1.

IT 2.

IT 3.

IT 4.

Integration: addUser	Tester v	Viewer ~	What the code does	Expected output	Actual Ouput	Pass/Fail ~
			110	Dropdown menu displays	The first of	10.00
User Type				and lets you choose one	Drop down menu	
Dropdown(Options: Admin,		Sai,	Clicking on the dropdown menu for the	of the following: Admin,	displays all three roles,	
Regular, Viewer)	Carson	Dakota	userType displays all three fields	Regular, View-Only	and lets you choose one	P
Add Button (checks that				Clicking add button will		
triggers addNewUser		Sai,	Add button will add the user and info from the	place the user and their	Add button does not	
method)	Carson	Dakota	fields (id, username, etc.) to the database	info into the database	work	P
Add Button (checks that			10.00	Clicking add button will		
triggers addNewUser		Sai,	Add button will add the user and info from the	place the user and their	Add button does not	
method)	Carson	Dakota	fields (id, username, etc.) to the database	info into the database	work	Р
Add Button (checks that				Clicking add button will		
triggers addNewUser		Sai,	Add button will add the user and info from the	place the user and their	Add button does not	
method)	Carson	Dakota	fields (id, username, etc.) to the database	info into the database	work	P

IT 5.

IT 6.

IT 7.

Integration: addCredential	Tester ~	Viewer ~	What the code does	Expected output	Actual Ouput	Pass/Fail
All mills and an area		100	Clicking on the add button should add the info	New credential is added	The add button does not	
Add button	Dakota	Sai, Carson	for the new credential to the database	to the database	work	P
			Clicking on the cancel button should not save the current credential being added and should	Does not save the current credential and send the user back to the home	current credential and sends the user back to	
Cancel Button	Dakota	Sai, Carson	send the user back to the home screen	screen	the home screen	Р
			Clicking on the add button should add the info	New credential is added	The add button does not	
Add button	Dakota	Sai, Carson	for the new credential to the database	to the database	work	P

IT 11.

IT 12.

Integration Test Results

	Integration: SearchUser	· Tester ·	Viewer ~	What the code does	Expected output		Pass/Fail ~
	Marie 1					Lets you enter info into	
IT 8.						the fields and returns	
11 0.				Clicking on the search button should check the	Returns no matches if	"No matches: (" if there	
			Dakota,	credential that is already added in the database	that user isn't in the	are no users matching	
	Search button	Carson	Sai	and if not it returns no matches	database	the info you put in	P
					Does not search the		
					current credential in the	It doesnot search the	
IT 9.				Clicking on the cancel button does not search	database and send the	credential entered and	
			Dakota,	the credential in the database and should send	user back to the home	take you back to the	
	Cancel Button	Carson	Sai	the user back to the home screen	screen	home screen	P
				Clicking on the search button should check the	Returns ID, username,	Returns ID, username,	
IT 10.			Dakota,	credential that is already added in the database	password, user type, and	password, user type, and	
11 10.	Search button	Carson	Sai	and if not it returns no matches	last login	last login	P

	Integration: SearchCred	Tester >	Viewer ~	What the code does	Expected output	Actual Ouput	Pass/Fail ×
				Clicking on the search button should check the	It returns the credential of	The Search button does	
•			Carson,	credential that is already added in the database	the specific user if it is	work and returns no	
	Search button	Sai	Dakota	and if not it returns no matches	found in the database	matches	P
					Does not search the		
					current credential in the	It doesnot search the	
)				Clicking on the cancel button does not search	database and send the	credential entered and	
			Carson,	the credential in the database and should send	user back to the home	take you back to the	
	Cancel Button	Sai	Dakota	the user back to the home screen	screen	home screen	P

Integration Test Results

	Integration: EditUser	∨ Tester ∨	Viewer ~	What the code does	Expected output	Actual Ouput	Pass/Fail v
IT 13.				When edit button is clicked it saves changes	Displays "successfully edited" and saves your	Displays "successfully edited" and saves your	
	Edit button	Carson	Dakota	that you enter into the fields to the database	changes	changes	P
IT 14.	Cancel button	Carson	Dakota	When the cancel button is clicked it should take you back to the home screen	Taken back to the home screen	Taken back to the home screen	P
IT 15	Delete button	Carson	Dakota		Displays "successfully deleted" and deletes the credential	Displays "successfully deleted" and deletes the credential	P ,

	Integration: EditCred	Tester ~	Viewer ~	What the code does	Expected output		Pass/Fail v
					Displays "successfully	Displays "successfully	
IT 16.				When edit button is clicked it saves changes	edited" and saves your	edited" and saves your	
	Edit button	Dakota	Carson	that you enter into the fields to the database	changes	changes	P
			1	When the cancel button is clicked it should take	Taken back to the home	Taken back to the home	
IT 17.	Cancel button	Dakota	Carson	you back to the home screen	screen	screen	P
		1111		The second secon	Displays "successfully	Displays "successfully	
IT 18.				When you click the delete button with the ID it	deleted" and deletes the	deleted" and deletes the	
	Delete button	Dakota	Carson	should delete the credential from the database	credential	credential	P

Traceability Matrix

Traceability Matrix

	Design Component	Requirement Description	Test Case #
Performance Requirements	System Architecture	The software shall support 10 users while maintaining a maximum response time of 2 seconds.	n/a
	User Interface	The software shall exhibit response times of between 0 and 2 seconds after user input.	n/a
	Server Infrastructure	Unplanned extended downtime shall not exceed 1 minute each week.	How does this even help develop requirements?
	Authentication Module	The software shall support a minimum of two users altering credentials at the same time.	n/a

PO	Traceability		Chhavi, Andrew	
tion Int	Matrix	Design Component	Requirement Description	Test Case #
Team s Organization	Security Requirements	Encryption Module	Admin passwords shall not be obtainable by any user but that specific admin.	What does this even mean?
Software Requirements		Access Control	Data log access shall only be available to Admin users.	n/a (but, true)
		Encryption Module	All data transfers containing user data shall be encrypted.	n/a (but, true)
Software Design		Session Manager	Sessions shall expire after an inactivity of 30 minutes.	n/a
Test Overview		Compliance Module	The software shall enforce password authentication requirements following the NIST Digital Identity Guidelines (SP 800-63B).	M13, M14, M15, M16
Traceability Matrix		Authentication Module	Accounts shall lock after three repeated failed login attempts.	n/a
		Database Security	For any database login, a minimum of AES encryption shall be used before authentication.	M13, M14, M15, M16
Software Demonstration		Backup System	The software shall prevent data loss of user credentials by completing daily backups of all files to a secondary location.	n/a
Reflection		Database Access Control	All interactions with the database shall access the database with the least privilege possible for the least amount of time.	M9, M10, M11, M12

Traceability Matrix								
	Design Component	Requirements Description	Test Case #					
	Modular Design	The software shall be divided into a minimum of 2 components that can be modified individually.	IT 1-18					
	Modular Design	Components shall allow the ability to update without affecting other parts of the system.	T16					
	Documentation	Software shall be accompanied by documentation.	n/a (but, true)					
	Security Framework	The software shall protect against unauthorized access and data breaches.	n/a (not, true)					

Software Demonstration

Watch Video

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Montana

everyone

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Reflection

- 1. Model unit testing allowed us to fix and isolate problems.
- 2. SDD and SRS are important to spend less time on deciding how the app should behave (we forgot some design screens)
- 3. Would have benefitted from being trained on whitty, sql interfacing.