PUNJAB UNIVERSIRTY COLLEGE OF INFORMATION AND TECHNOLOGY

Guardian Vault

Cyber Security

Project Report

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IT-F20-Morning OC

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Problem Statement

"Existing data storage systems lack robust protection against SQL Injection attacks, jeopardizing the security of personal and sensitive information. This project aims to develop ‘Guardian Vault,' a secure and user-friendly platform that encrypts data and implements measures to prevent SQL Injection vulnerabilities, ensuring data integrity and privacy for users."

IDEA

"Guardian Vault" aims to revolutionize data security in the digital age. By implementing encryption techniques, the project offers a secure storage module for personal information and sensitive data. The objective is to create a robust and user-friendly platform, instilling confidence in users to store their information securely. Ultimately, this project prioritizes data privacy and seeks to elevate cybersecurity standards.

Specifications of Guardian Vault

1. **User Authentication and Authorization:** Implement a secure user authentication system using industry-standard protocols to ensure only authorized users can access "Guardian Vault".

2. **Encryption Algorithms:** Utilize strong encryption algorithms to encrypt both user credentials and sensitive data stored within " GuardianVault."

3. **Secure Storage:** Design a secure storage mechanism to store encrypted user data in databases or file systems, ensuring data integrity and confidentiality.

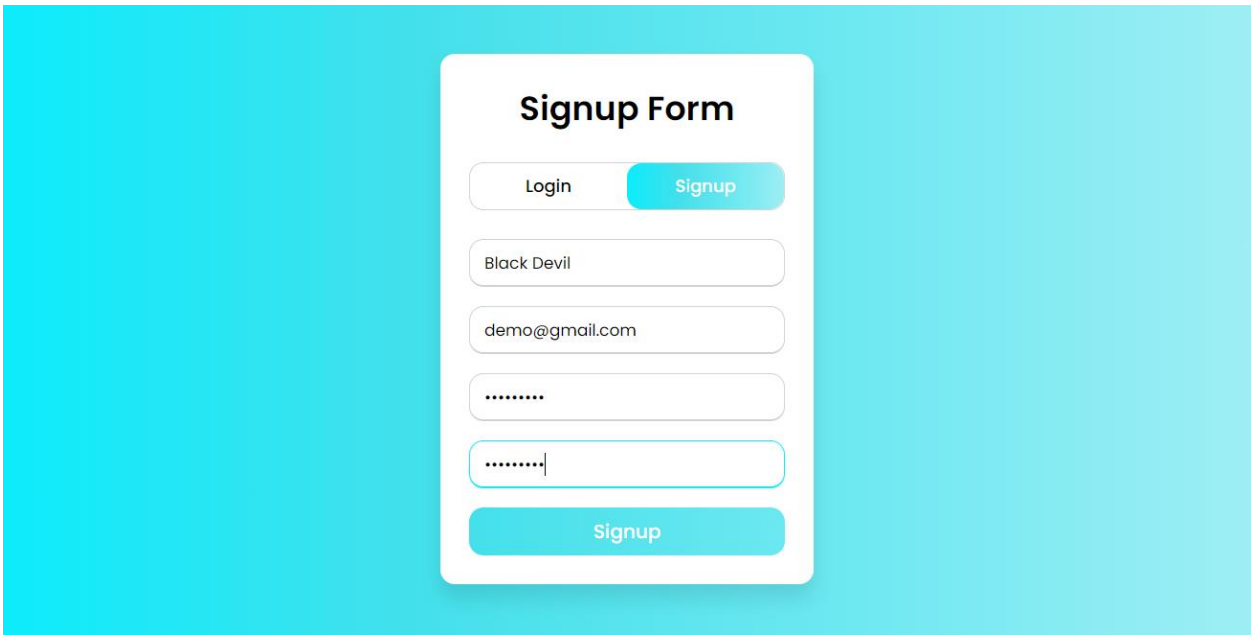
4. **SQL Injection Prevention:** Implement parameterized queries and input validation techniques to prevent SQL injection attacks, ensuring the security of the underlying database.

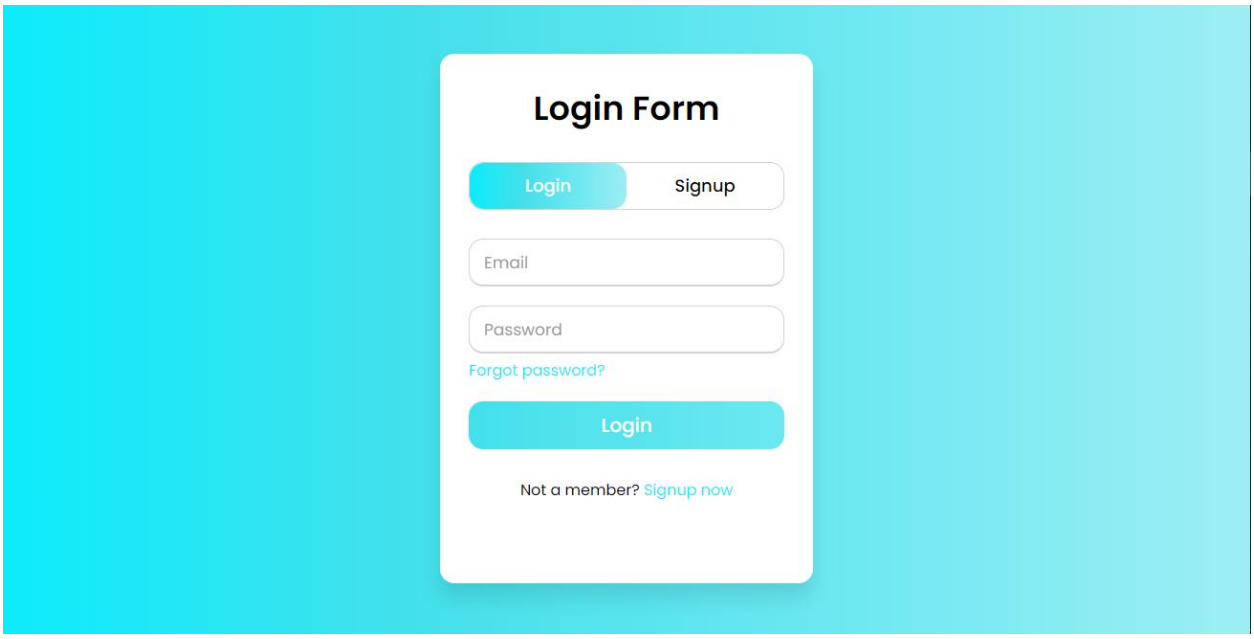
5. **Intuitive User Interface (UI):** Create an intuitive and user-friendly UI for easy navigation and efficient interaction with " GuardianVault," catering to users across different devices and platforms.

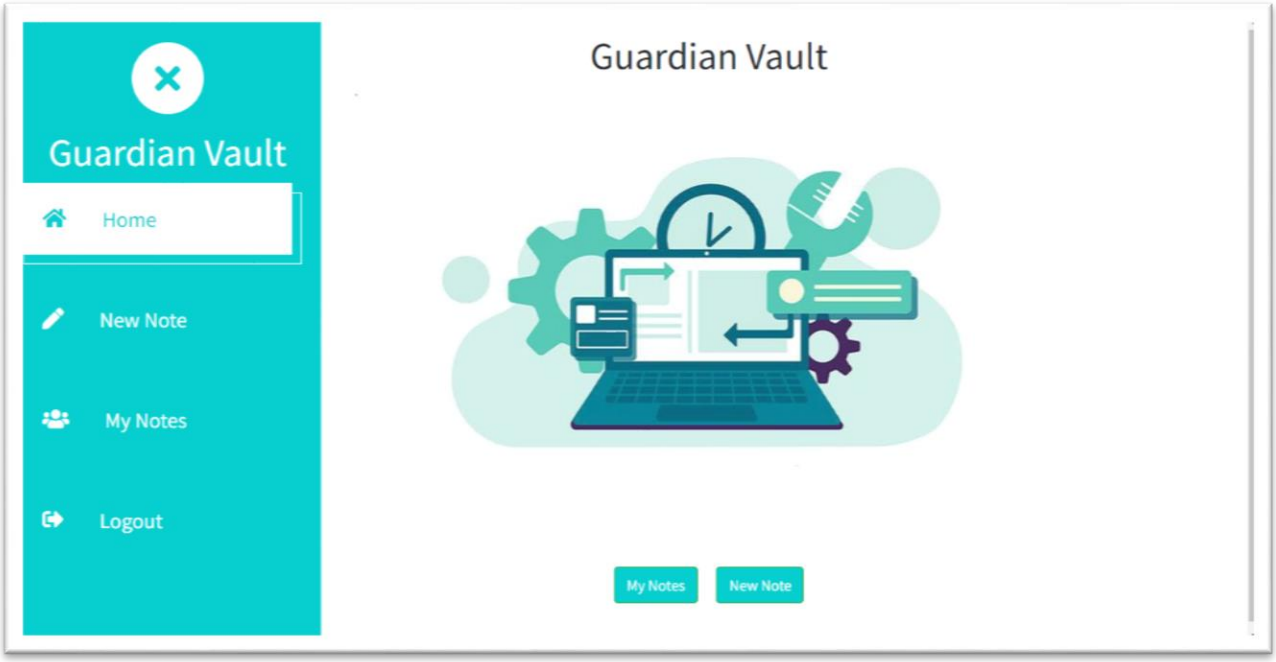
Technology:

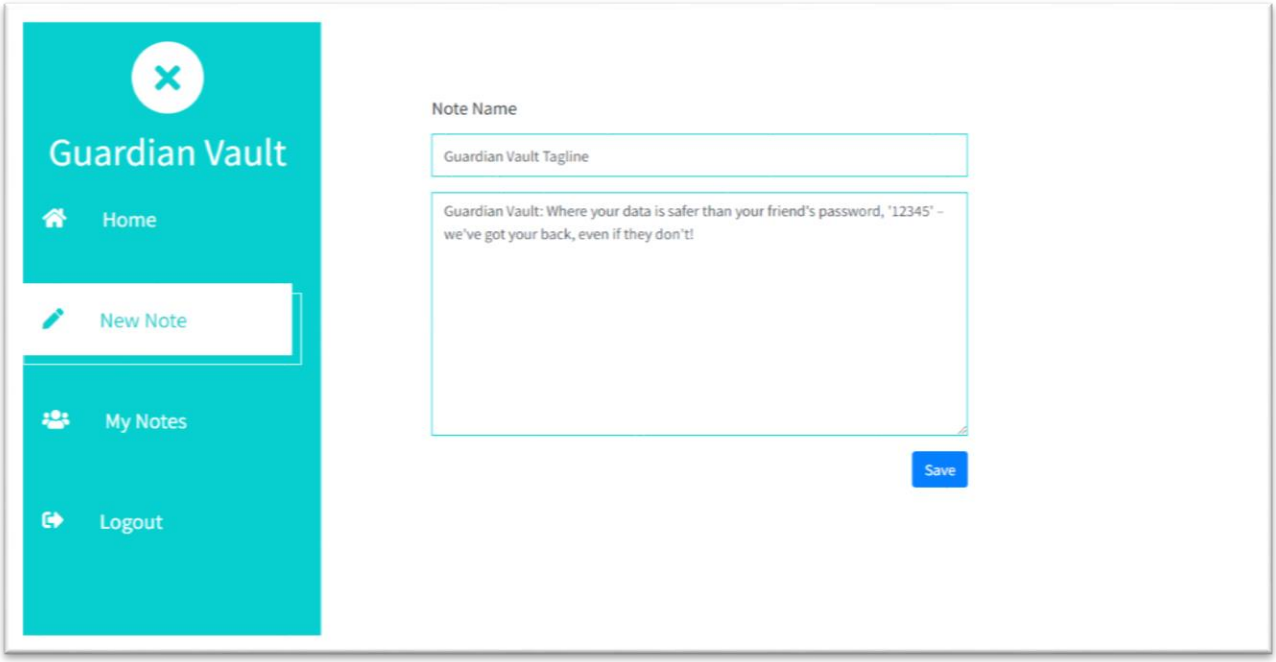
1. **Front-End Development:**
    - **HTML/CSS:** For structuring and styling the user interface, ensuring a visually appealing and user-friendly experience.
    - **JavaScript:** Used for client-side scripting to create dynamic and interactive elements within the application's interface.
2. **Back-End Development:**
    - **Python Flask:** Employed as the web framework for building the server-side logic and managing interactions between the front-end and database.
    - **MySQL (via MySQL Workbench):** Used as the database management system to store and manage encrypted user data securely.

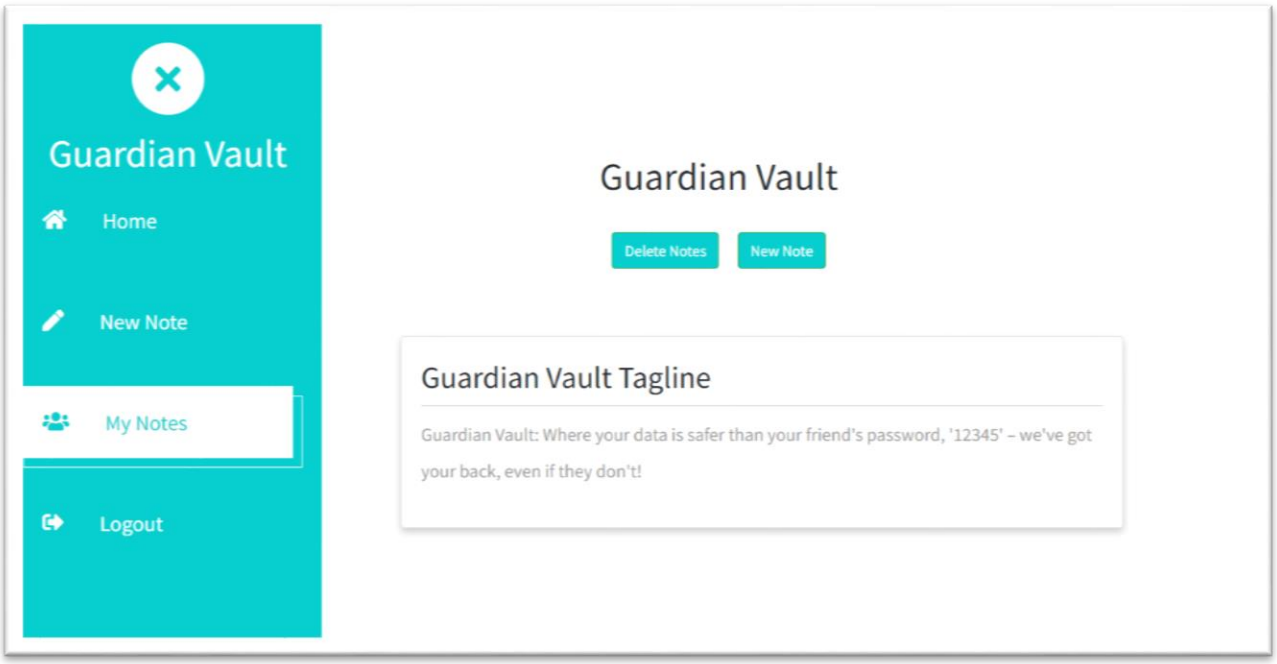
Overview Of Website:






Guardian Vault
Home
New Note
My Notes
Logout
Guardian Vault
My Notes
New Note


Guardian Vault
Home
New Note
My Notes
Logout
Note Name
Guardian Vault Tagline
Guardian Vault: Where your data is safer than your friend's password, '12345' – we've got your back, even if they don't!
Save


Guardian Vault
Home
New Note
My Notes
Logout
Guardian Vault
Delete Notes
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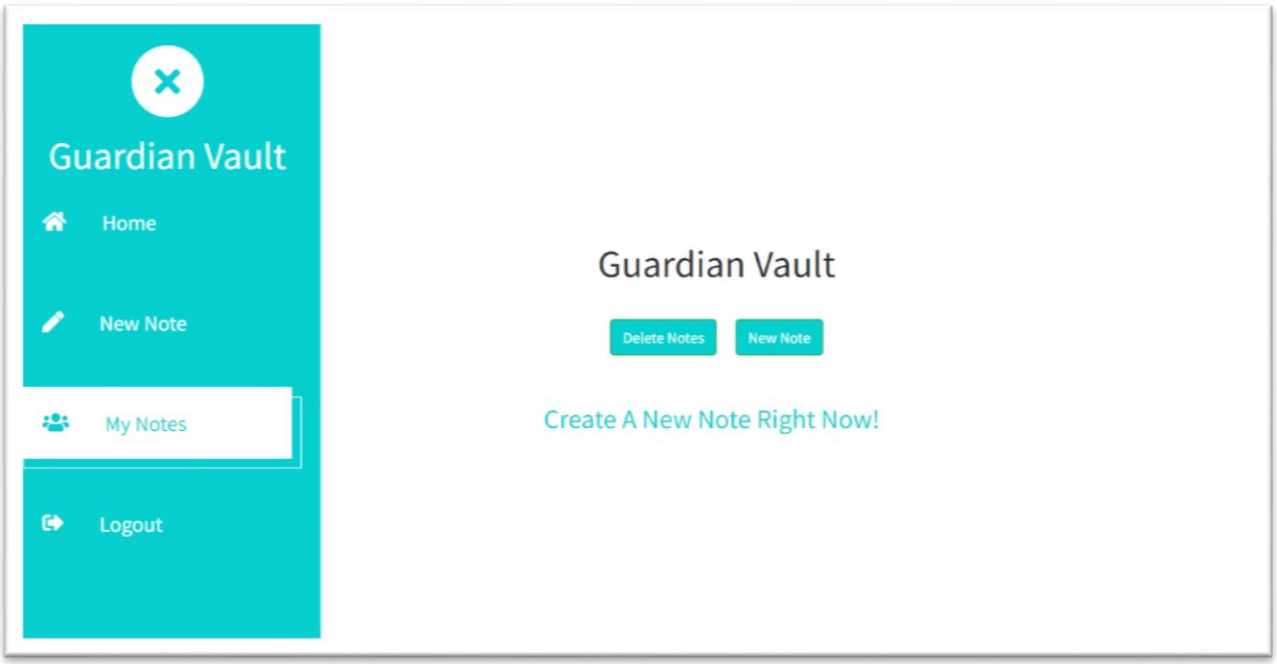
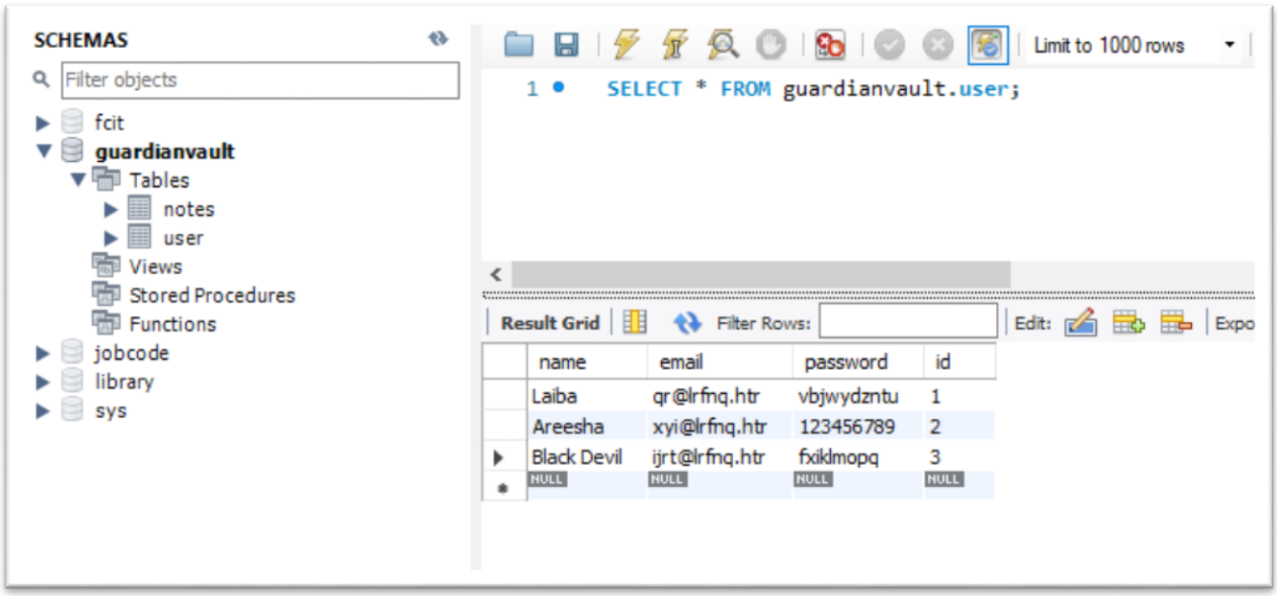
Guardian Vault Tagline
Guardian Vault: Where your data is safer than your friend's password, '12345' – we've got your back, even if they don't!


Guardian Vault
Home
New Note
My Notes
Logout
Guardian Vault
Delete Notes
New Note
Create A New Note Right Now!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Limit to 1000 rows
1 SELECT * FROM guardianvault.user;
Result Grid
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Black Devil ijrt@lrfnq.htr fxiklmopq 3
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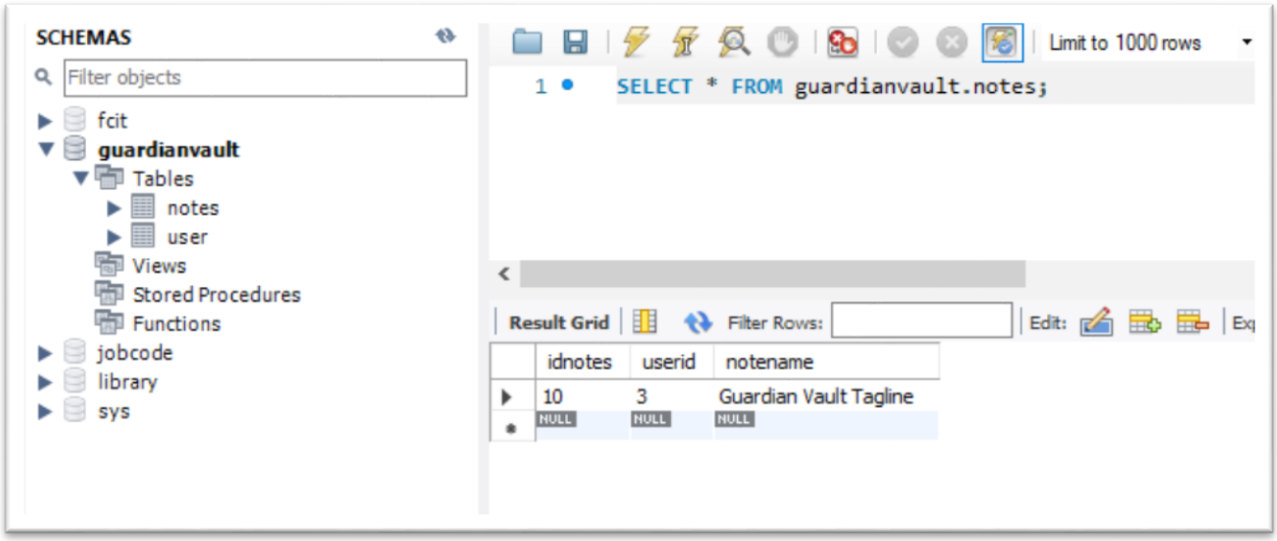
SCHEMAS
Filter objects
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guardianvault
Tables
notes
user
Views
Stored Procedures
Functions
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library
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Limit to 1000 rows
1 SELECT * FROM guardianvault.notes;
Result Grid
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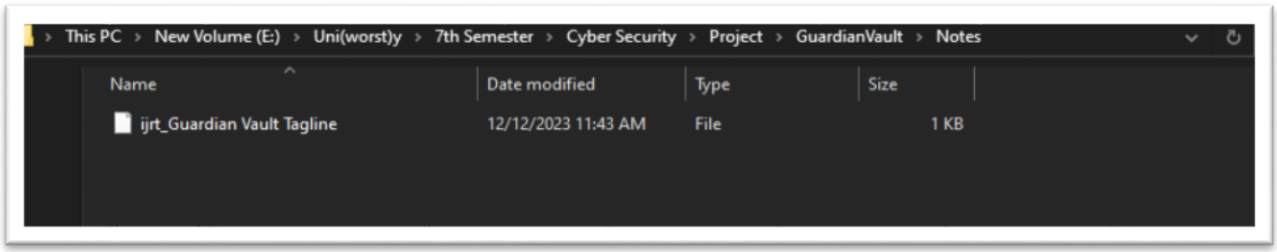
10 3 Guardian Vault Tagline
NULL NULL NULL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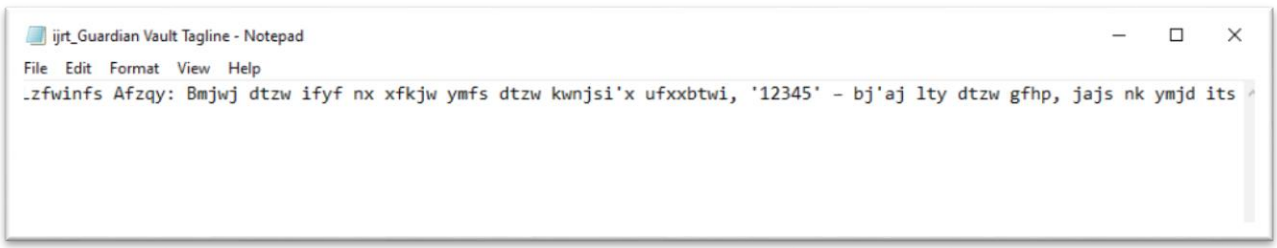
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Challenges:

1. **Complexity of Encryption:** Implementing robust encryption techniques can be complex. Choosing the right algorithms, managing encryption keys securely, and ensuring seamless integration without compromising performance are significant challenges.
2. **Performance vs. Security Trade-off:** Balancing robust security measures with optimal performance is a delicate challenge. Strong encryption and stringent security practices might impact the application's speed and responsiveness, necessitating careful optimization.

Sequence Digram