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ENSE 375 – Software Testing and Validation

# VaultGuard

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## **1 Introduction**

This section will be built out as the report grows.

## 2 Design Problem

### 2.1 Problem Definition

Cyberattacks and credential-based breaches are becoming increasingly common in our digital world. Managing passwords securely is more challenging than ever for individuals and organizations. As a result, people often resort to weak or reused passwords. According to [1], 65% of individuals recycle passwords across different sites. This practice increases the risk of being affected by a breach. Our project addresses these issues by developing a secure and user-friendly password management software. It will allow users to generate, store, organize, and retrieve keys conveniently and safely.

### 2.2 Design Requirements

This section has the following three subsections:

#### 2.2.1 Functions

- Provide functions of the design project. Remember that the functions contain verbs.

#### 2.2.2 Objectives

- Provide objectives of the design project. Remember that the objectives are specified as adjectives.

#### 2.2.3 Constraints

- Provide constraints here. Remember that the constraints are binary (either satisfied or not).

### 3 Solution

In this section, you will provide an account of some solutions your team brainstormed to implement and test the project. Some solutions might not have all the desired features, some might not satisfy the constraints, or both. These solutions come up in your mind while you brainstorm ways of implementing all the features while meeting the constraints. Towards, the end you select a solution that you think has all the features, testable and satisfies all the constraints. Remember that an engineering design is iterative in nature!

#### 3.1 Solution 1

Write a brief description of your first solution and provide the reasons in terms of testing for not selecting this one.

#### 3.2 Solution 2

This is an improved solution but might not be the final solution that you select. Give a brief description of this solution here. Again focus on its testing attributes.

#### 3.3 Final Solution

This is the final solution. **Explain why it is better than other solutions** (focus more on testing). You may use a table for comparison purposes. After providing the reason for selecting this solution, detail it below.

##### 3.3.1 Components

What components you used in the solution? What is the main purpose of using individual component? What testing method did you employ for each component? Provide a block diagram (with a numbered caption, such as Fig. 1) representing the connectivity and interaction between all the components.

##### 3.3.2 Environmental, Societal, Safety, and Economic Considerations

Explain how your engineering design took into account environmental, societal, economic and other constraints into consideration. It may include how your design has positive contributions to the environment and society? What type of economic decisions you made? How did you make sure that the design is reliable and safe to use?

### 3.3.3 Limitations

Every product has some limitations, and so is the case with your design product. Highlight some of the limitations of your solution here.

## 4 Team Work

We have not yet mapped out and assigned work for this project. We will do this before development begins.

### 4.1 Meeting 1

Time: Month Date, Year, hour: minutes am/pm to hour: minutes am/pm

Agenda: Distribution of Project Tasks

Team Member	Previous Task	Completion State	Next Task
Team member 1	N/A	N/A	Task 1
Team member 2	N/A	N/A	Task 2
Team member 3	N/A	N/A	Task 3

### 4.2 Meeting 2

Time: Month Date, Year, hour: minutes am/pm to hour: minutes am/pm

Agenda: Review of Individual Progress

Team Member	Previous Task	Completion State	Next Task
Team member 1	Task 1	80%	Task 1, Task 5
Team member 2	Task 2	50%	Task 2
Team member 3	Task 3	100%	Task 6



### 4.3 Meeting 3

Provide a similar description here.

### 4.4 Meeting 4

Provide a similar description here.

## 5 Project Management

Gantt chart has been created under our GitHub repo but tasks are not yet mapped out.

## 6 Conclusion and Future Work

- A summary of what you achieved. Mention all the design functions and objectives that you achieved while satisfying testing requirements?
- While keeping the limitations of your solution, provide recommendations for future design improvements.

## 7 References

- [1] Enzoic, “8 Shocking Stats on Password Reuse,” *Enzoic Blog*, May 11, 2022. [Online]. Available: <https://www.enzoic.com/blog/8-stats-on-password-reuse/>

## 8 Appendix

If you want to provide an additional information, use this appendix.