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COMP-1004 design documentation

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# Introduction

In this documentation I will be outlining the steps taken to design, plan, implement, and test my project for the COMP-1004 module. Due to my focus on the course being cyber security, I will be creating a program which caters towards this aspect of my course.

For this project, I will be developing a single page web application which will aim to act as a username and password storage system. The user should be able to enter a username and password to be stored and the system will also indicate to the user the strength of their password.

# Software development life cycle

A crucial part to the development of any software development is conforming to a software development cycle designed to keep developers on track and to effectively resolve any time delays and issues faced during the development process. The five stages of the SDLC include:

* Requirement analysis
* Design
* Implementation
* Testing
* Evolution

If these steps are not followed as intended, a project could take end up taking much longer to complete than initially planned or even fail entirely if it is deemed that the development cost is higher than the potential return.

*Hackr.io. (2023).*

## Requirement analysis

There are 3 main requirement types in the first step of the SDLC, those being the functional, non-functional, and usability, each having different considerations that must be discussed and planned for. Firstly, the usability requirements of a project refer to how easy it is to use the program upon completion. Secondly, non-functional requirements refer to the limitations of a software and how it can meet the requirements of the program as well as how it may not be possible to meet specific requirements. Finally, functional requirements refer to what the program can do and how well it can handle different use cases such as being able to handle extreme or incorrect data inputs without crashing. External requirements are another part which must be considered, this refers to any legal, ethical, or social issues which must be acknowledged.

## 

## Project vision

My vision for this project is for it to be made use of by non-professional web users who wish to securely store their usernames and passwords whilst being informed on the individual security of each password being stored to prevent the use of easily cracked passwords.

## Background

Username and password management systems have been available for public use for over 20 years and aid the user in keeping track of each individual login for various websites. The use of password managers has been widely observed to encourage higher standards of login security as the user does not need to remember various usernames and passwords as the manager keeps track for them, therefore security standards are more likely to be adhered to.

Due to the nature of data being stored by username and password management software, legal, and ethical considerations must be taken to comply with current regulations. The’ Data Protection Act 1998’ and ‘Data Protection Act 2018’ are the UK legislation which govern how data can be collected and stored as well as what steps an organisation must take to ensure the security of said data. In this case steps must be taken to ensure that only the necessary data is stored, e.g., Usernames, Passwords, and the site they are for. Furthermore, the program should securely store any data collected to comply with legislation and prevent data leaks.

## User stories and use case scenarios.

in this section, the user stories and use cases will be outlined in the following diagram. A diagram of a user account

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# References

Hackr.io. (2023). *Top 7 SDLC Methodologies [Complete Guide]: Agile, Waterfall.* [online] Available at: <https://hackr.io/blog/sdlc-methodologies>. [Accessed 15 November 2023]