**COMP1004 – Single Page Web Application Project**

**Introduction**

A Single Page Web Application is a fast and effective way to provide content for users without the need to load a new page. Cyber Security is used throughout computing world, being more crucial now than ever, with emerging technologies allowing for more ways for hackers to get a hold of data. However, just the simple forms of protection will help prevent attacks, with the most common form of protection used by everyone being passwords. Passwords will make it very difficult for anyone to bypass, but a good password will make it near impossible. My project will be a password generator, which will have the user create an account with a secure password. If the password is not secure enough, that being if it is not up to a suitable length, or doesn’t have a mix of special characters, it will be told to change or add to it or be given an example for a new password. When the user has created a password, they can re-enter it into the application to see if it is correct. The Software Development life cycle will be used to help efficiently manage time and when certain parts of the project should be started or finished throughout the project.

The Software Development Life Cycle consists of several stages, the first being the planning phase. The Planning phase is always used at the start of projects, as it allows the team, and for this project, me, to conduct some research to find what the project is going to include or be exactly. Planning will give me time to properly find out what I am creating and why.

The design phase will use all the information from the planning phase to put some ideas together of how the project should look. It doesn’t have to be final project worthy, as it is the first design, which can be improved upon.

The coding phase is where everything from the design phase and planning phase is implemented into the actual code. In this stage the background code will be implemented to make the application function, and the code to make the application visually match that of the design phase is implemented. This code will be later tested in case there are any crucial bugs that are preventing the application from being deployed.

The testing phase is crucial for checking what is right and wrong with the project before it is officially deployed. This is to prevent any bugs that have gone unnoticed from making their way to the final version of the application that is used by users.

The final phase is the deployment phase, where all stages prior have helped to make sure the application can be deployed to the user.

**Agile**

Agile is a project management methodology that breaks up the project into multiple phases and involves constant collaboration. This methodology is very popular due to flexibility and being able to be continuously improved on throughout the life cycle. Agile involves continuous collaboration with the stakeholders, and every stage requiring constant improvement. Agile’s four main values are:

* Working software over comprehensive documentation
* Responding to change whilst following a plan
* Interactions and individuals prioritised over processes and tools
* Customer collaboration prioritised over contract negotiation

Some of the benefits that Agile brings are:

**High quality** – Agile can produce higher quality results due to the project being able to be broken down into sprints by the teams, so they can cooperate. Teams will be able to solve problems quicker due to there being a testing phase for every task, resulting in the overall project being of a higher quality.

**Flexibility** – The approach and processes of the project are adapted straight away to meet the needs if the original objectives of the project have been deviated. This flexibility will help a lot with certain projects that may have requirements that change a lot.

**Cost control** – The budget is reviewed by the team after each stage, then deciding if the tasks or project will be continued or cancelled. This makes sure the cost of each feature is understood by the team, being useful for strategic decision making.

Some of the drawbacks of using Agile are:

**Required commitment from everyone** – There is a lot of commitment needed throughout the whole team when using Agile. If there is someone who is not putting in the effort and do not know what they are doing, can negatively affect the quality of the project as a whole. This would be disappointing to those who participated appropriately.

**Lack of predictability** – Due to the flexibility of Agile, predicting the amount of time required or the resources can be a lot harder. This can be worrying for many teams, which can cause poor-decision making, which would be detrimental to the project.

**Lack of necessary documentation** – The lack of documentation in Agile will cause misunderstanding of the project for the team, causing more problems later down the line. This is due to the tasks being completed quickly, just in time for the beginning of development.

**User Stories:**

User stories are provided below to help see what users expect from my application.

**“As a user I want to be able to input a password.”**

* Press Keys to type
* Press Enter Key to input the password

**“As a user I want to be able to see what I need to make my password better if it’s not good enough.”**

* Press Keys to type
* Press Enter Key to input the password
* Display Error message if password does not meet or exceed 12 characters, or contain 2 special characters.
* Provide ‘OK’ button to allow the user to edit password

**“As a user I want the application to check if my password is correct.”**

* Press Keys to type
* Press Enter Key to input the password
* Display Error message if password does not meet or exceed 12 characters, or contain 2 special characters.
* Ask user to re enter password if password satisfies the 12 character and 2 special character check.
* Provide ‘OK’ button to allow the user to edit password

Main Page –

**Password Generator**

**Please enter a password below:**

**OK**

Password:

Error screen –

**Generate**

**OK**

**There was an error, please make sure your password is at least 12 characters long and retry:**

**Alternatively, press the generate button and the application will generate a password for you.**

Password:

**Password Generator**

**Back**

Generated password screen –

**Here is your generated password. Please re-enter it below:**

**Password Generator**

**(Generated password)**

Password:

Re-enter password:

**Back**

**OK**

Password successful screen –

**Please re-enter your chosen password below:**

**OK**

**Password Generator**

**Back**

Re-enter password:

Password saved screen –

**Password Generator**

**OK**

**Your password has been saved!**