Saint Augustine’s College, Sydney

**Software Engineering Year 11: Object Oriented Programming**

Table of Contents

[Planning 3](#_Toc167198325)

[Task Definition 3](#_Toc167198326)

[Algorithm Design 4](#_Toc167198327)

[Storyboard 5](#_Toc167198328)

[GANTT Chart 6](#_Toc167198329)

[Implementation 7](#_Toc167198330)

[GitHub Repository URL 7](#_Toc167198331)

[Testing 8](#_Toc167198332)

[Project Reflection 9](#_Toc167198333)

# Planning

## Task Definition

I have been assigned the task of developing a Python based Graphical User Interface (GUI) to address a common secure risk which is passwords security. without the need for providing personal / sensitive information such as Emails, date of birth etc. This GUI known as “SPC” (Secure Password Checker) is design to read and check whether a user’s password is secure by provide helpful suggestion such as:

* Whether it has a secure number of syllables.
* What type of characters might need to be added (A-Z, 0-9, !@#$%^&\*()\_-+={}[];’:”,./<>?|\).
* Making sure there is an absence of common dictionary terms or prohibited words.
* most importantly to make sure the password hasn’t already been used in known data breaches.

## Algorithm Design

The provided pseudocode delineates the method for the generatePassword method. It constitutes the program's most intricate algorithm, involving string operations and iterative constructs to assemble the password according to specified parameters.

#### generate\_password

BEGIN generate\_password(length, use\_lowercase, use\_uppercase, use\_numbers, use\_special)

SET characters = ''

SET password = ''

IF use\_lowercase THEN

APPEND 'abcdefghijklmnopqrstuvwxyz' TO characters

ENDIF

IF use\_uppercase THEN

APPEND 'ABCDEFGHIJKLMNOPQRSTUVWXYZ' TO characters

ENDIF

IF use\_numbers THEN

APPEND '0123456789' TO characters

ENDIF

IF use\_special THEN

APPEND '!@#$%^&\*()\_+-=[]{}|;:,.<>/?' TO characters

ENDIF

FOR i FROM 1 TO length

SET randomIndex = RANDOM INTEGER BETWEEN 1 AND LENGTH(characters)

APPEND characters[randomIndex] TO password

ENDFOR

RETURN password

END generate\_password

## Storyboard

This storyboard presents a preliminary design of the user interface planned for development utilizing Python 3.x and the GooeyPie framework. The envisioned application is streamlined, featuring input fields for character count and password, along with a selection of checkboxes that allow for the inclusion of various character types in the password generation process. It will include a button to regenerate the password and another to copy it to the clipboard. The help screen is designed to offer concise information about the software, highlighting its principal functions.

A screenshot of a computer

Description automatically generated *This diagram was generated using* [*.drawio*](https://www.drawio.com/)*, a link to the template can be found* [*here*](https://drive.google.com/file/d/1v-T5jTqqZkWZ4OXoLb7UGfcRfovvmecz/view?usp=sharing)*.*

## GANTT Chart

The following GANTT chart was created at the beginning of my project and includes predicted timescales for each of the main tasks surrounding implementation, testing and release of my software.

*A screenshot of a calendar

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# Implementation

## GitHub Repository URL

# Testing

# Project Reflection