CS 20: Using Colour in Processing Challenge (19 marks)

Outcomes include:
CS20-CP1: Apply various problem-solving strategies to solve programming problems throughout Computer Science 20.
(f) Analyze and implement programs with the goal of improving code to achieve the most elegant solution

CS20-CP2: Use common coding techniques to enhance code elegance and troubleshoot errors throughout Computer Science 20.
(a) Discuss and implement appropriate coding style (e.g., indentation and comments) and naming conventions for the programming language used in Computer Science 20.
(d) Create internal documentation (e.g., inline comments and header comments) for a program.

CS20-FP3: Construct and utilize functions to create reusable pieces of code.
(a) Explore the benefits of using built-in and user-defined functions.
(d) Develop user-defined functions that utilize argument passing.

	Expert - 4	**Meeting** - 3	**Progressing** - 2	**Beginning** - 1	**Incomplete** - 0
Execution	The program runs properly with no errors At least two complex images Each shape function has at least 3 different shape commands	The program runs properly with no errors Two distinct shapes Each shape function has at least 3 different shape commands	Minor errors in the code that do not prevent the code from running Two distinct shapes Less than three shape commands in the function	Errors in code prevent it from running	Submitted code is incomplete

Functions and Parameters	Functions are used for all code. The functions add to the readability of the code. All functions use parameters. Each shape is made with an original function with a meaningful name All functions are called and work properly.	At least one function with parameters is used. The function adds to the readability of the code. All functions are called and work properly.	At least one function is used but parameters are not used properly (i.e. code bypasses the parameters). Functions work properly.	No parameters were used for the functions.	No functions were used
Colour		The background is not the default colour More than one region of each shape is filled with a colour Use at least 3 different colours on each shape	The background is the default colour Use at least 3 different colours on each shape The whole project contains less than 5 different colours No greyscale colour or less		Project is not coloured

		The whole project contains at least 5 different colours At least 1 greyscale colour and at least 3 RGB colours	than 3 RGB colours		
Formatting		Code is organized and easy to read All code is formatted according to PEP8 All comments are properly formatted	Code may be difficult to follow All code is formatted according to PEP8 Not all comments are properly formatted	Code may be difficult to follow A few minor formatting errors according to PEP8 Comments are not formatted properly	Code is difficult to follow Multiple formatting errors according to PEP8
Documentation		Program includes a header with all necessary information File name relates to the program Comments for at least blocks of code that belong together		The header may be missing important information File name may not relate to the program Coding does not have enough comments Variables may not	No header File name does not relate to the program Comments are missing Variables do not have meaningful names, or are not defined.

		Comments for all functions All variables are given meaningful names and are defined with comments		have meaningful names, or are not clearly defined.	

Colour (5 marks)

- ❏
- ❏