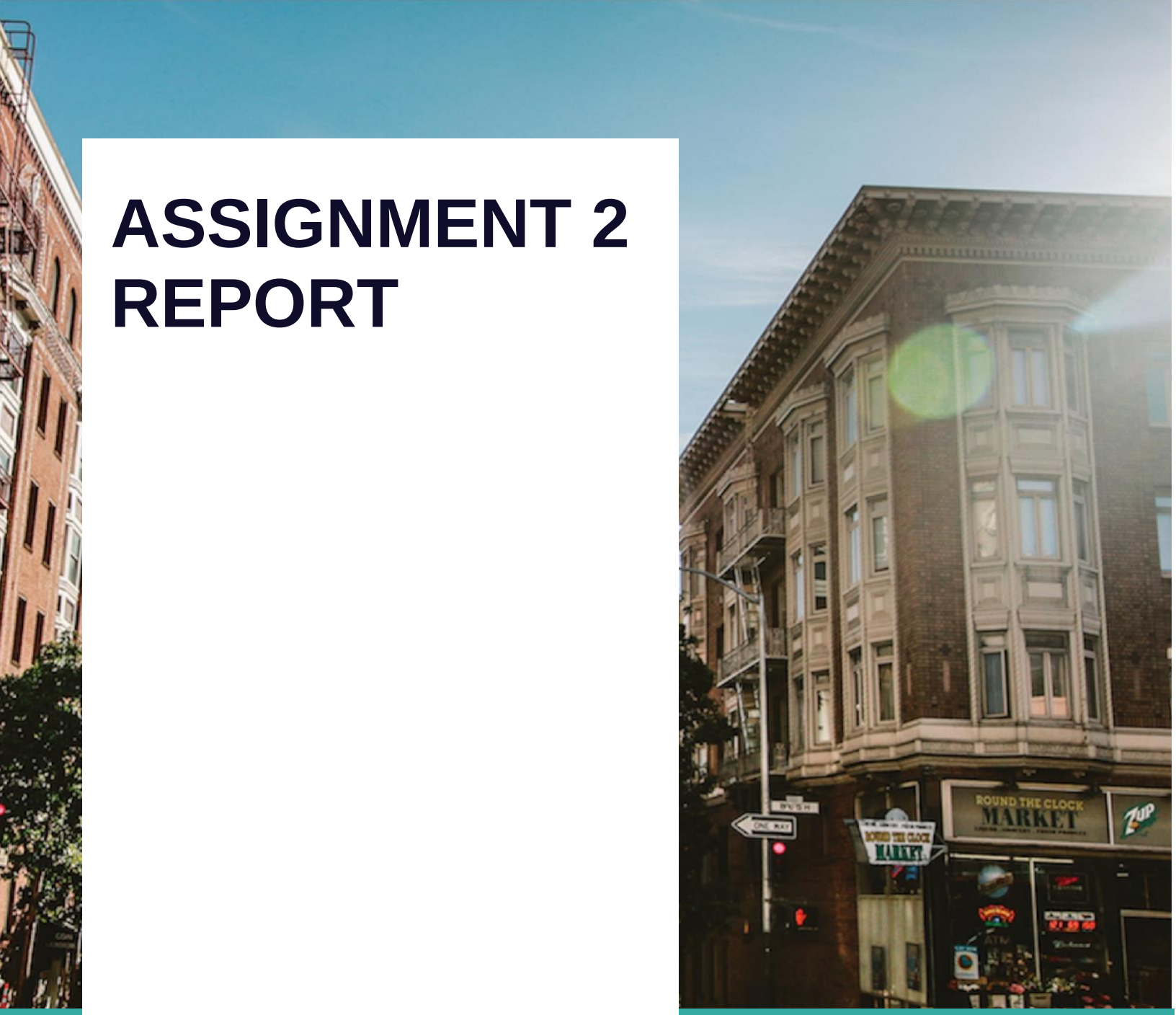

ASSIGNMENT 2 REPORT

FRI 4 AUGUST 2023

COS10004 – Computer System

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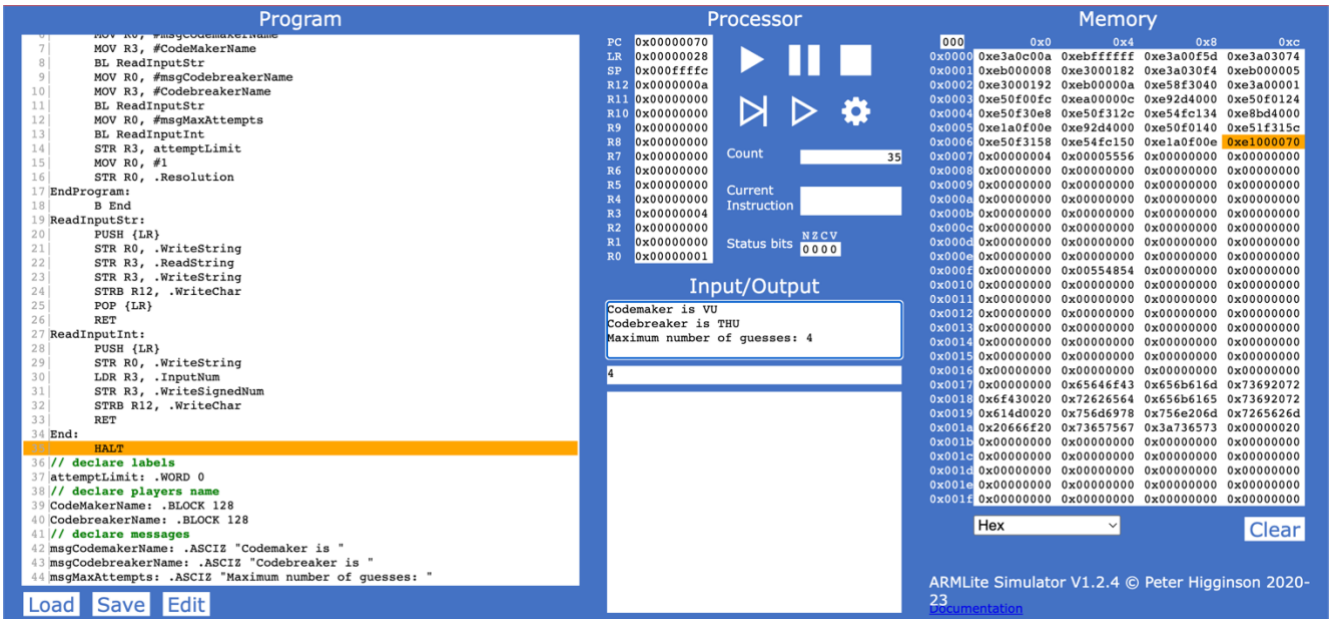
I. Description.

This project aims to recreate a working Mastermind game in which the Codebreaker must decipher a secret code created by the Codemaker using four different coloured pegs. Each visitor's input contributes to limiting the code's potential outcomes. The player with the fewest guesses who cracks his opponent's secret code wins.

II. Work.

1. Stage 1



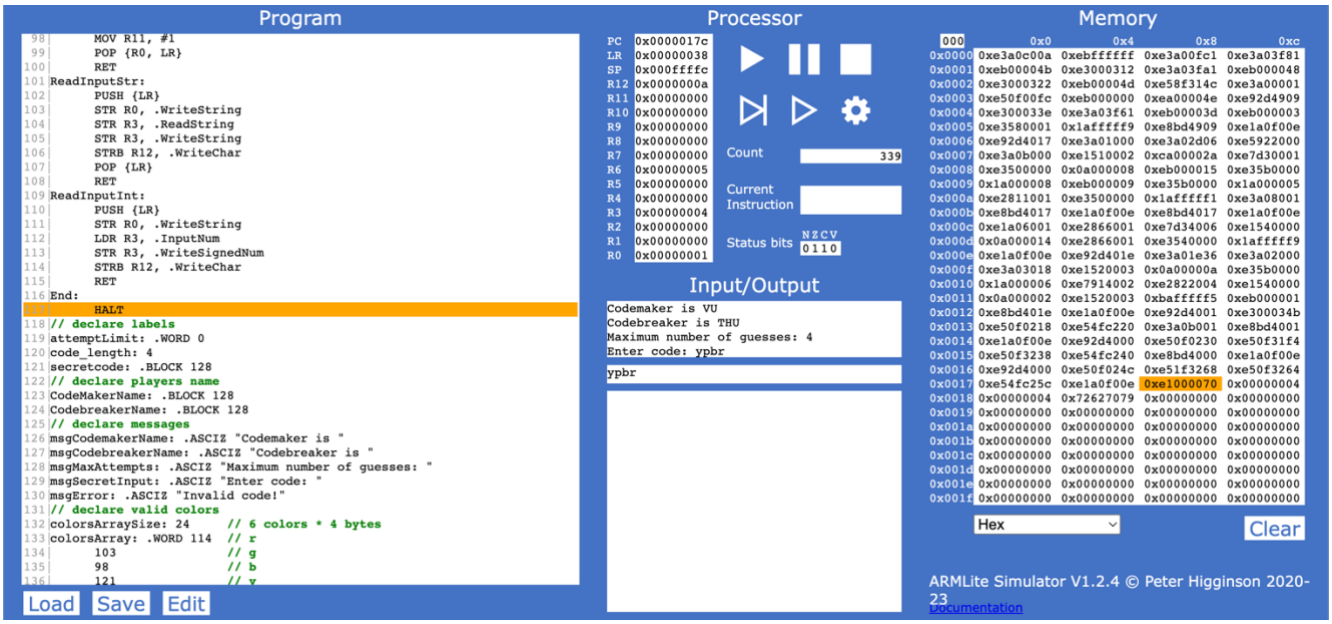
In Stage 1, I have created a few extra functions such as Program, ReadInputStr, ReadInputInt.

Functions:

- Program: This is the main function I called to run the code at the start.
- ReadInputStr: This is the function where I use to read string input such as Codemaker and Codebreaker name.
- ReadInputInt: This is the function I use to read integer input, such as the maximum guesses the player could have.

All the functions have worked as required in the instruction, and I haven't yet found any issues.

2. Stage 2



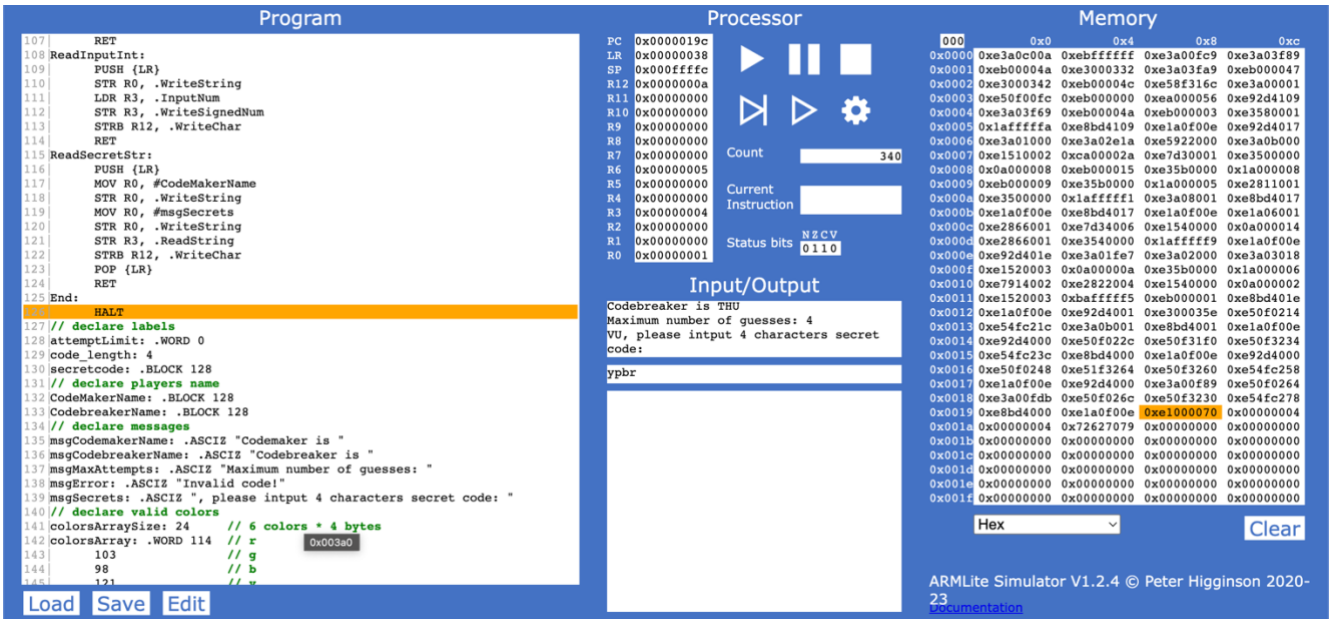
In this stage, I have added functions called SecretCode, CodeValidation, ReadCharValidation, ColorValidation, and CodeErrors.

Functions:

- SecretCode: This function uses function ReadInputStr to read the input and uses CodeValidation to validate whether the input is valid.
- CodeValidation: This function will double check whether it is matching the valid length (4) and the validate the character whether they are valid color.
- ReadCharValidation: This function will double check whether same character has been input example (rrrr) will be invalid and (rgby) will be the valid input. Therefore if it is invalid, this will throw in a CodeErrors.
- CodeErrors: This uses to print out the error message.

All the functions have worked as required in the instruction and I haven't yet found any issues at this stage.

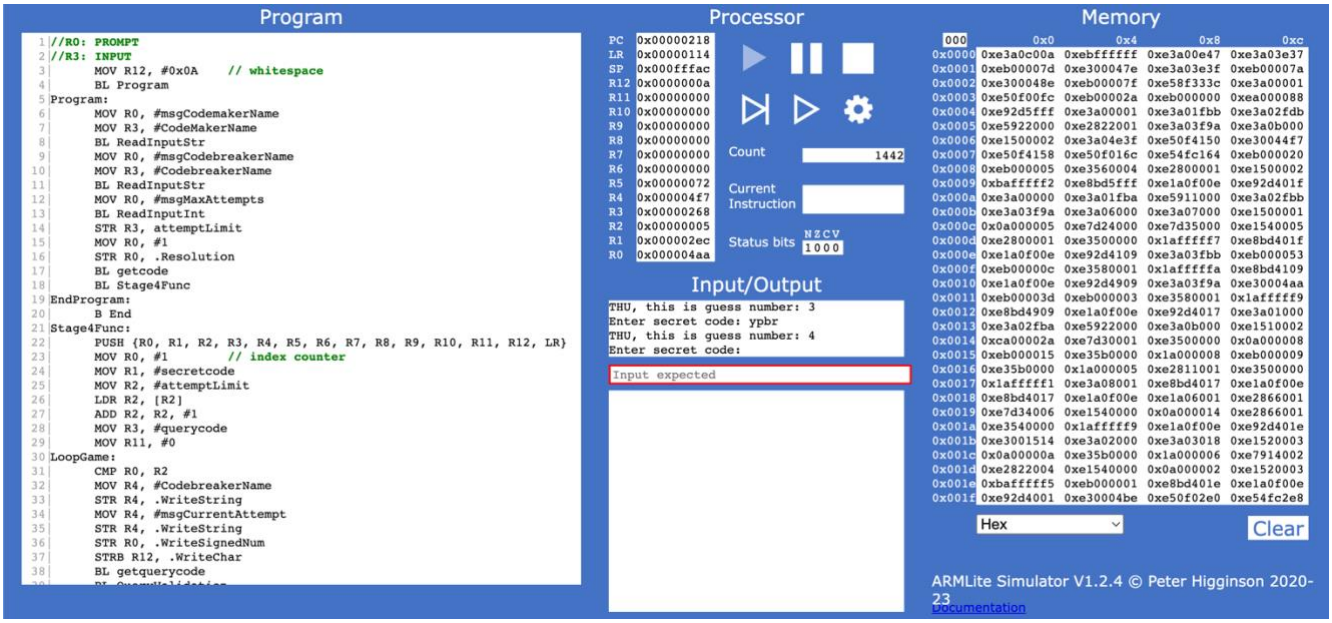
3. Stage 3



In this stage, I added a function call ReadSecretStr. This is the function where it will get a CodeMakerName and add Message down the back. Therefore I have the result: “ , please intput 4 characters secret code: “ as required.

All the functions have worked as required in the instruction and I haven’t yet found any issues.

4. Stage 4



At this stage, I have added 3 functions: QueryCode, QueryValidation and GetCode.

Functions:

- QueryCode: This function is responsible for comparing the number of guesses with the maximum suppose that it has. And will loop until both the index and maximum guesses are the same. Furthermore, this also uses QueryValidation to ensure they match the requirement from its input from GetCode. (Max length input = 4 numbers, and can only enter r,g,b,y,p,c).
- QueryValidation: This function will double-check whether it matches the valid length (4) and validate whether the character is valid colour.
- GetCode: This function will most likely get the secret codes from the user's input but will also double-check whether it matches the valid length (4) and validate whether the character they are valid colour by using the function CodeValidation.

All the functions have worked as required in the instruction, and I haven't yet found any issues at this stage as it prints out like the requirement.

5. Stage 5

a. Stage 5.a

At this stage, I have added a function called CheckColor and renamed QueryCode => CompareCodes (the instruction requires this)

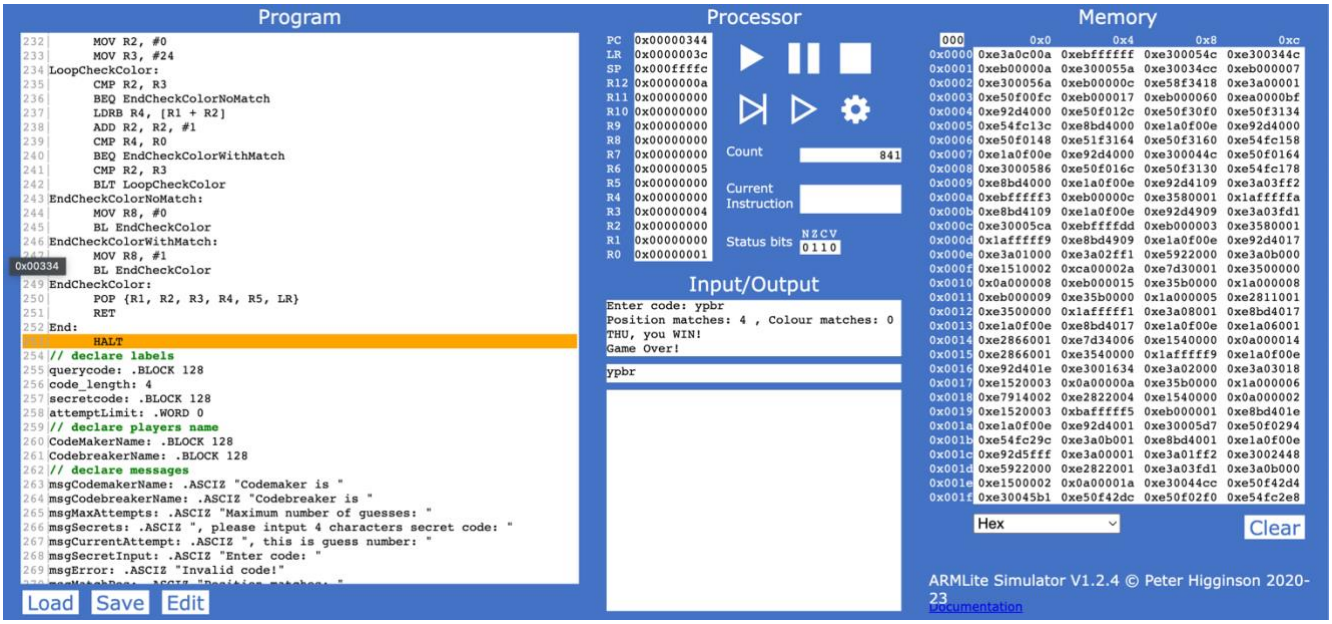
CompareCodes still works like QueryCode but has more QueryValidation to make sure:

- Case 1: the query peg directly matches its corresponding peg in the secret code.

- Case 2: the query peg is a match with at least one other peg in the secret code but not in the correct position.
- Case 3: the peg has no match in the secret code.

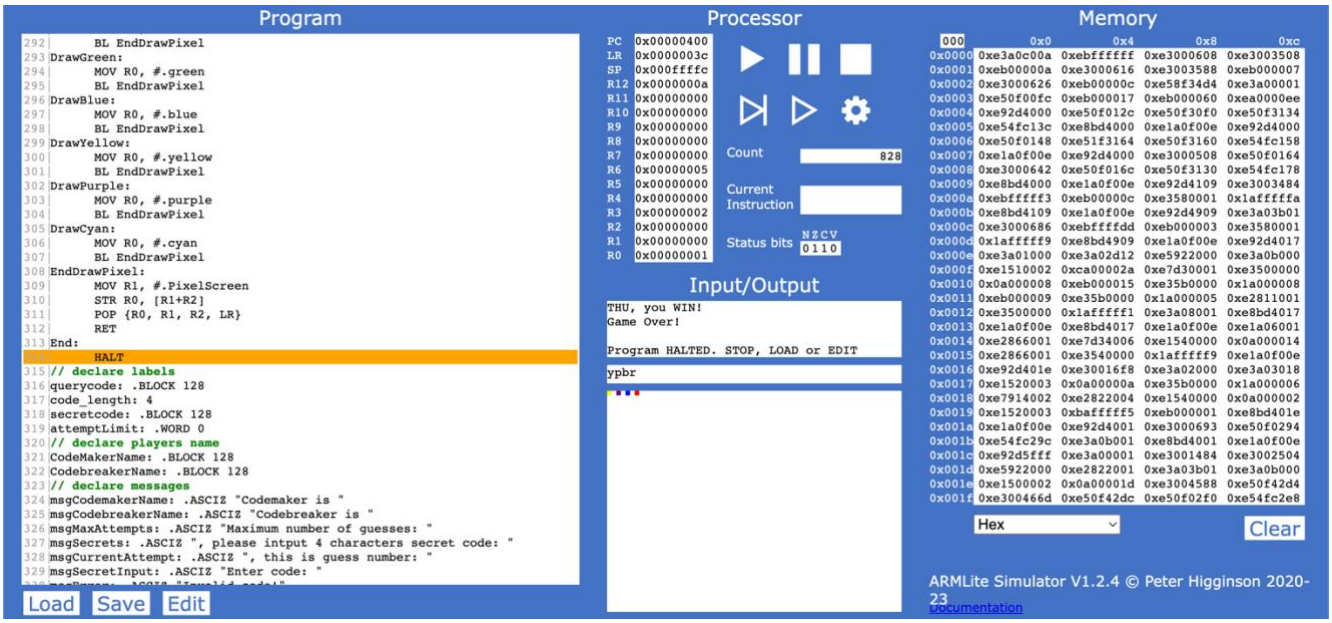
These cases will use a function called CheckColor to see whether they match or not match. If they match, Case 1 will generate a count of 4, and Case 2 will have a count of 0.

b. Stage 5.b



In this stage, I just added a Win, Lose, and GameOver function as well as printing out the Position matches: , Colour matches: and this seems to worked as required in the instruction.

6. Stage 6



In this stage, I added a function call DrawCode and DrawPixel.

Functions:

- DrawCode: This function will loop until each character in querycode is finished.
- DrawPixel: This function has a job to compare then converted each character in querycode to matches its color array then start drawing the color itself.

III. Assumption.

I have made an effort to construct the program during this project without making any assumptions. The preceding courses covered all of the rationale behind this approach, emphasizing the importance of considering all possible scenarios and variables.

IV. Problem.

The program seems to function as it is required in the instruction, no issues have been discovered but I still feel they're still exist since coding has never been flawless in real life thus there is a possible chance that bugs can still crops up. The program appears to work as it is required in the instruction. no difficulties have been found.