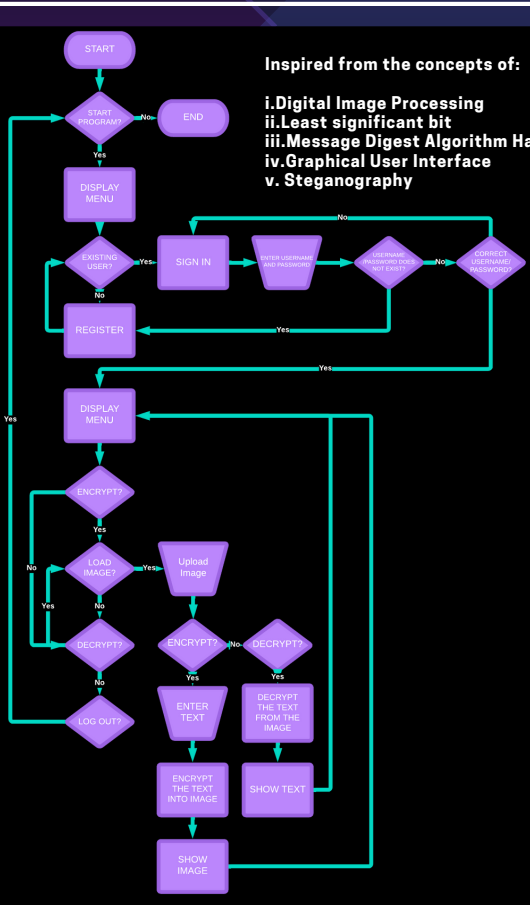
A STEGANOGRAPHIC TEXT ENCRYPTION AND DECRYPTION APPLICATION IN MATLAB

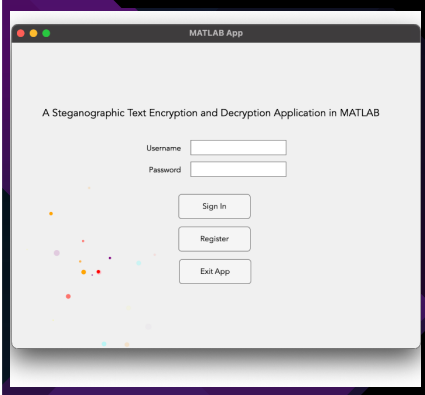
Objectives

With this, the proponents have decided to create a MATLAB application that allows users to encrypt and decrypt text data using steganography. The program lets the user enter a secret message that will be hidden in an image using steganography techniques. The intended application of the project is to provide a secure and covert method for communicating sensitive information using digital images.



Inspired from the concepts of:

i.Digital Image Processing
ii.Least significant bit
iii.Message Digest Algorithm Hashing
iv.Graphical User Interface
v. Steganography



main.m - The main script of the application. It runs the GUI of the login and registration page.

login.m - The script that allows the user to login to the application.

register.m - The script that allows the user to register to the application.

isusernameexist.m - The script that checks if the username entered by the user already exists in the application.

DataHash.m - The script that hashes the user's credentials to be used as a key to encrypt and decrypt the text.

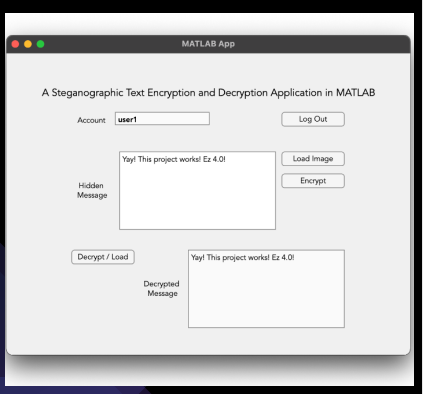
steg.m - The script that allows the user to encrypt and decrypt text using image-based steganography.

encrypt.m - The script that encrypts text using steganography.

decrypt.m - The script that decrypts hidden text using steganography.

lena_std.tiff - The image used to demonstrate the application.

account.txt - The text file that stores the user's credentials. This file is updated when the user registers to the application.



Description

The project was created using MATLAB R2022b/R2023a, and is a fully functional application that can encrypt and decrypt text using steganography. The application can be used to hide text messages in images, and can also be used to extract hidden text messages from images. The application is also unique to a specific user, as it uses MD5 hashing to hash the user's credentials as a key to encrypt and decrypt the text.

This project was created as a partial fulfillment of the requirements for the course LBYEC4A - Signals, Spectra, and Signal Processing Laboratory at De La Salle University - Manila. Every line of code was written by Team Aquaman, composed of Rocelle Belandres, Jelo Laca, and Keane Sulit. It was supervised by Ramon Stephen L. Ruiz.