An-Najah National University
Faculty of Engineering and IT

جامعة النجاح الوطنية
كلية الهندسة وتكنولوجيا المعلومات

Electrical and Computer Engineering
Information and network security (10636511)
HW1

ILOs	Deadline 28/10/2024 midnight	5% points

You can use any programming language:
Provide a suitable GUI program that is easy to use to support the following features.
The Image format is .bmp.

Problem statement: We want to hide *secret* text (in *cover* image (RGB colored).

Interface and functionality requirements: *Something similar to figure 1*

- Provide push buttons to select the image from a folder and display it on the program, name them select and load image for example.
- The screen must be split into **three areas**. The first area for the original image which is the cover, the second for the secret text file or input text, the third is for showing the result image that hides the secret.
- Provide mechanism to select the number of bits to use from the cover image to hide the secret. (Options 1,2 or 3).
- Push button **Hide** the result is shown in the result area. It uses the cover image to hide the secret text and the result is displayed on the dedicated area. There is option to save the result image in a folder with save push button.
    - The hiding process depends on the number of LSBs to use from the original cover image. First, we need to clear them, meaning to make them all zeros, Red, Green and Blue respectively. Then, you take the secret text byte by byte and add them to the cleared places in the colors accordingly and in the same order.
    - The result will be displayed after that.
- Push button **Restore**, the reverse process on the **Hide** push button.
- **Report your observation when use the three option 1,2,3 LSBs. Submit a PDF document showing the process of hiding and resorting the secret text taking screen shots on your device.**
- **Upload a compressed folder with code and the PDF report and one example image with text file to hide.**
- **It must be your own code, it will be tested for similarity, cheating or using code from internet or AI tools... is not allowed.**

- Your program will be tested for images that have hidden messages.
- Assume the size of the RGB images is 800x500 pixels.
    - Note: each RGB pixel color is 3 bytes: one byte for each color.
    - You can search images on google for images, nature, cars, people, or any suitable category you choose. Use the search text for example: *bmp nature imagesize: 800x500*
    - You may resize to image to any custom size.
- Provide push buttons for **Load**, **Save** and **Clear** to help controlling the images.
    - Add what you think is suitable for the interface and functionality. Your ideas…

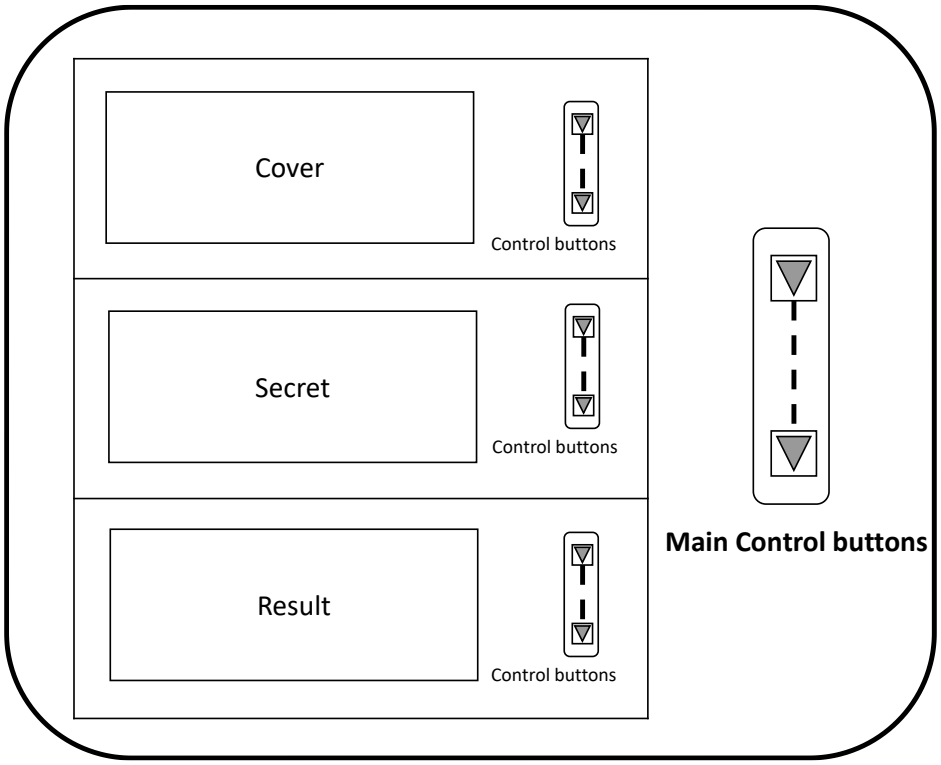

Figure 1: Interface requirements