This document will provide a detailed explanation to the design of the user interface to be implemented in the Graphical Enigma Simulator.

Main Menu:

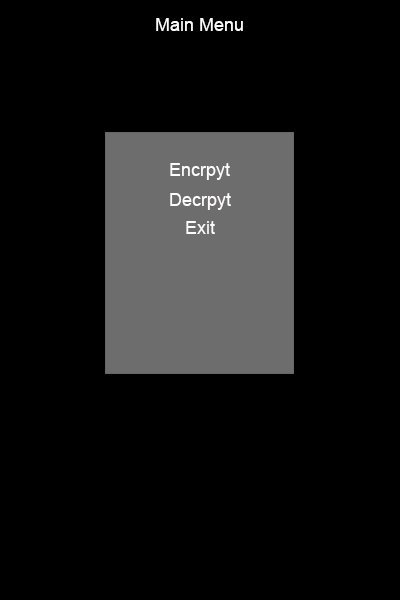


Figure 1

The image above, figure 1, represents the layout of the main menu the user shall be presented with upon starting the program. The user will then have various options to select from, encrypt, decrypt and exit.

Encrypt Screen

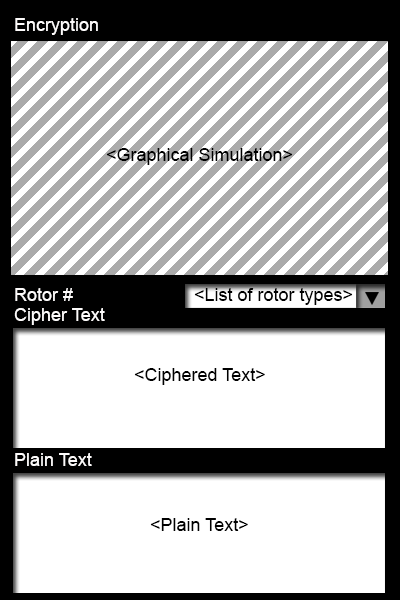


Figure 1.1

Figure 1.1 represents the layout intended to be implemented in the program. The graphical simulation shall be a 3D graphical animation which will clearly demonstrate the encryption process within an Enigma Machine.

Due to there being a number of different type of rotors available with different encryption keys, the user will be able to select from a number of different type of rotors.

The user will then enter text in the ‘plain text’ text box. Once the user enters one letter, the graphical simulation will then demostrate the encrpytion process by animating the current passing through the rotors and then encrypting that letter.

Decrypt Screen

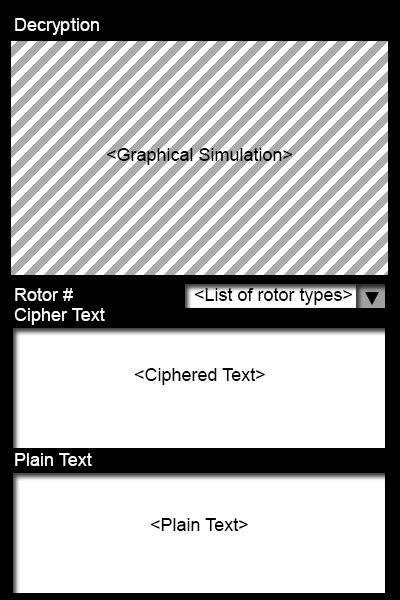


Figure 1.2

The decrypt screen layout is similar to the encrypt screen except that the user will be allowed to input their ciphered text and the output will be in the format of the plain text. The graphical simulation will demonstrate the process of decrypting a letter.

Alternative design layout were also explored with the possibility of having the interface in a landscape layout which would also the graphical simulation further more space on the screen which would allow the user to see more clearly the simulation.

Below are the design concepts.

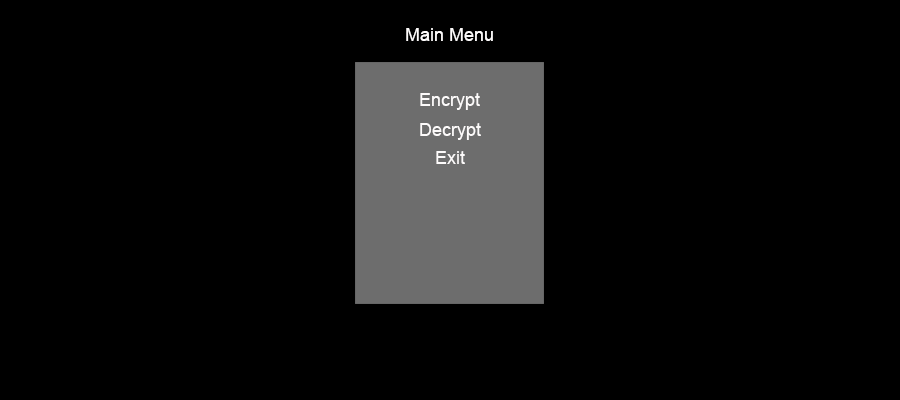
Main menu screen:

Figure 2

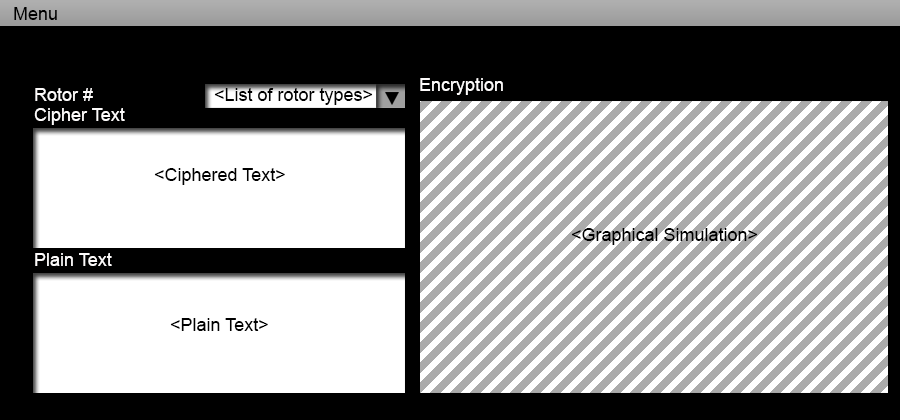
Encrypt screen:

Figure 2.1

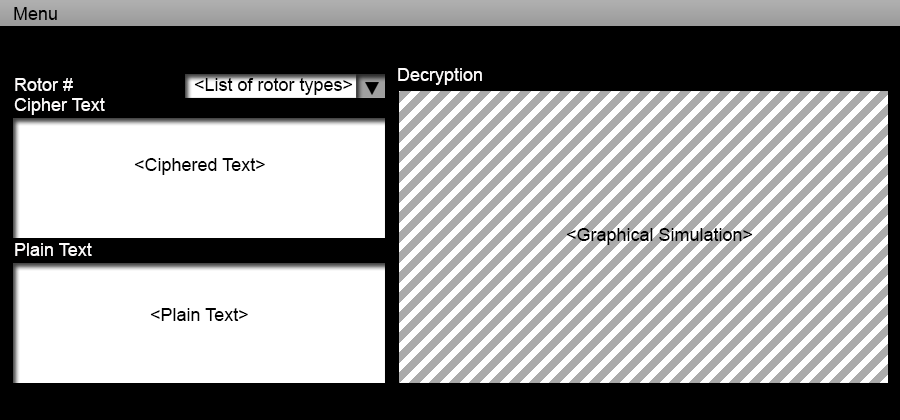
Decrypt screen:

Figure 2.2

The content within the screens would remain the same, with only the screen orientation differing.

**Final Design**

After much consideration throughout implementation and testing the design concepts changed. It was decided that the orientation should be set to landscape only, however the main menu is unaffected by this.

Main Menu

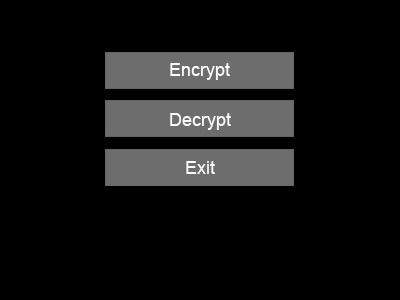


Figure 3

Encryption Screen

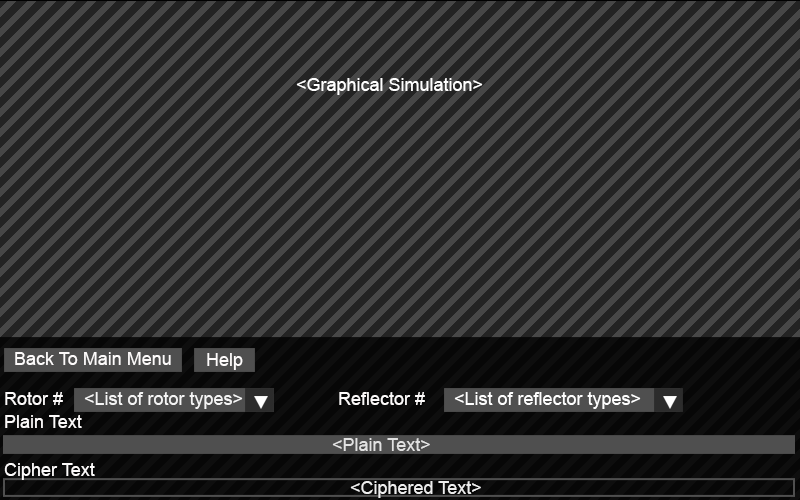


Figure 3.1

Decryption Screen

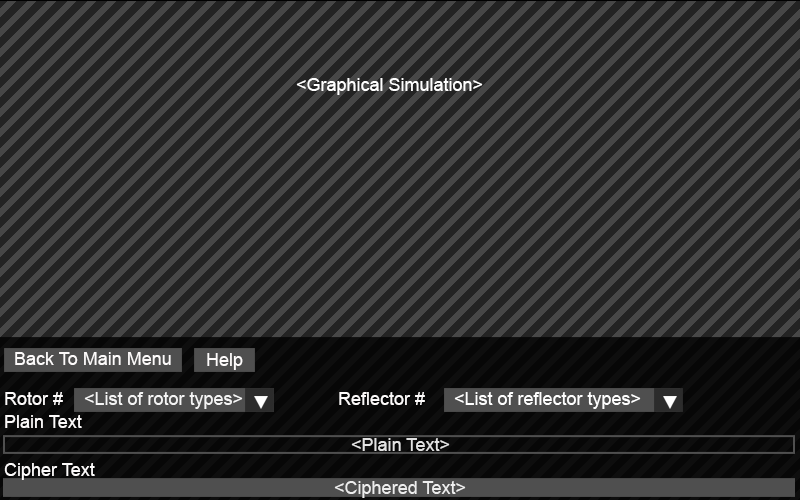


Figure 3.2

Help Screen

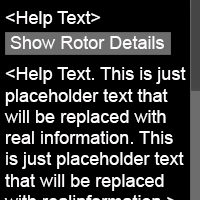


Figure 3.3

From figure 3.1 and 3.2 we can see that some features were added from the initial design concepts. The user will now be able to also select the preferred reflector number. Also a help button has been included. This will present a semi-transparent pop up window which will contain information about the process of the encryption and decryption methods. It shall also contain the controls necessary for the user to manipulate their view of the simulation.

Figure 3.3 shows the help screen which will be populated with text which the user can refer to for guidance and a button which will present the user with an image of a complete rotor with details of each component.