Enigma Simulator

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Overview

This is a Python based Simulator of Enigma machine that was used by Germans during World War II for encryption of confidential communications between the field troops and the Headquarters. This project tries to cover the basics functionalities of the Enigma machine and adds some useful extensions too.

How To Run

- The Prerequisites are:
    - Python 3
    - PyQt5 (to install pyqt5 run "pip install pyqt5" on terminal)
- Run "enigma.py" file included in the folder using python interpreter.
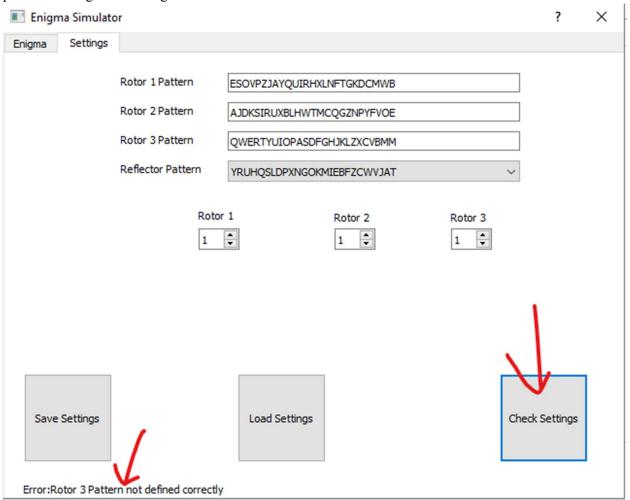
User Work Flow

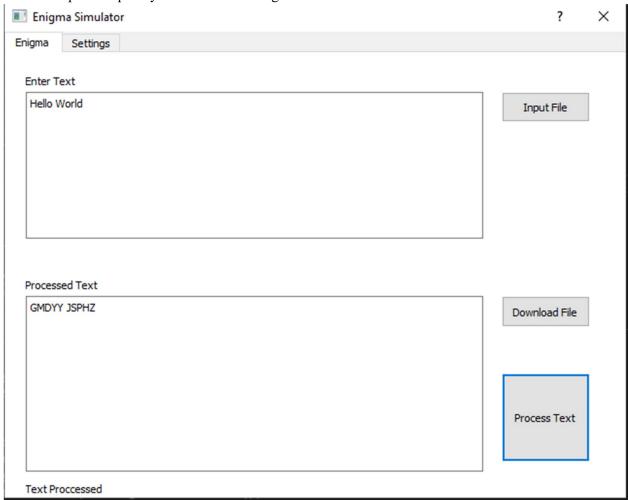- When the python Script is running it initializes with the settings tab.

- This Tab has all different settings that you can change.
    - The 3 rotor Patterns describe the Pattern of each rotor that will be used while encryption. Each pattern needs to be a scrambled sequence of English alphabet in order to work.

- There are a bunch of different Reflector Patterns that can be used. Pick one from the combo box and you are good to go.
- The Check Settings Button will check if the settings will work or not. If there is an error in the pattern it will give a message for that.

- The Save Settings button will save the settings to a predefined file "settings" in the same folder. It can be useful when you need to send someone an encrypted message but don`t want to send each and every setting. The Load Settings button will load the settings file, if no such file exists it will throw an error message.

- After Set up is complete you can move to Enigma tab.

- This Tab is Pretty much self explanatory It has input field output field options for getting input from file and saving output to file.
- The input File Button opens a dialogue where u can pick your input file and the download file button opens a dialogue where u can name the file you want to save the output to.
- The Process Text button processes the text entered in the input field.
- The Simulator Does support most of the Special characters but will not transform them, instead leaves them as they are.

Limitations

- This Simulator Doesn't Support Plugboard that is Part of most of the enigma machine models.
- This Simulator only Supports 3 rotors at a time, nothing more nothing less.
- The Settings are complicated and hard to remember.

Self-evaluation

This Simulator is capable of doing most of the work of an enigma machine effortlessly. The only things it lacks in are listed in the limitations, other than that it is very customizable and is less prone to crashes and exceptions.

I will rate the Simulator 4 out of 5.