Enigma Project Report

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Contents

1 Encrypt function

1.1 Initial Logic

The first steps of working on the encrypt function were first to simplify the exercise at hand into simpler steps, that can be tackled one by one, this process is also known as the top-down method. The assignment has been broken down into the following steps:

1. Find a way to set the initial offset of the Enigma Machine to the offset given in the form of a 3-letter string *rotors*.
2. Simulate the running of the Enigma Machine with the initial offset and the letters in *message* typed in individually.
3. Find a way to record the ouput of the enctryption process of each individual letter.
4. Return a string of the encrypted letters.

Setup

Before we started with writing any new code, we made sure to *import EnigmaModel from EnigmaModel*, which allowed us to use functions and variables defined in the *EnigmaModel.py* file.

Next, we chose to define the variable *alphabet* as the string consisting of all capital letter in the english alphabet, as this was used several times as the backbone to many functions and steps in EnigmaModel.py.

Step 1

We needed to have a way of accessing the rotors' offsets from the EnigmaModel.py file in order to change their initial values from "AAA" or 000 to the values given in *rotors*. We chose to do that by assigning *EnigmaModel()* to a variable *model*.

Now we could start focusing on the translation of *rotors* into the initial rotor offsets. What we needed to do was to turn letters into numbers into offset fx. "ABC" == "012" == 0 and 1 and 2, the important observation here is that **the index of a given letter in the alphabet is also the offset of the rotor when showing that specific letter**. Thanks to that, we could implement

Step 2

B

Step 3

B

Step 4

B

1.2 Debugging

2 Find Rotors function

2.1 Functionality and Logic

2.2 Debugging