

```

1 #-----
2 # Name:      enigma_caller.py
3 #
4 # Notes:      Caller to scramble or unscramble messages from a WW2 M3 Enigma
5 #              machine.
6 #
7 # Links:      https://cryptii.com/pipes/enigma-machine
8 #
9 # TODO:
10 #-----
11
12 import re
13 from textwrap import wrap
14 from enigma_machine import M3EnigmaMachine
15
16 def clean_message(message):
17     """Cleans a message of non-alphabetic characters and returns the result.
18
19     Args:
20         message:
21             A string of text to clean.
22
23     Returns:
24         A string containing the cleaned up text.
25     """
26     regex = re.compile('[^a-zA-Z]')
27     return regex.sub('', message)
28
29 def format_message(message, grouping=5):
30     """Formats a message by splitting it into blocks for easier reading of
31     encrypted text.
32
33     Args:
34         message:
35             The message to be split into blocks.
36         grouping:
37             The block size of the split up text.
38
39     Returns:
40         A string containing the original text but grouped into blocks.
41     """
42     return ' '.join(wrap(message, grouping))
43
44 def create_craig_machine():
45     """Let's set up the machine!!! It's been a lot of work, but I finally did it!
46
47     Args:
48         None.
49
50     Returns:
51         A M3EnigmaMachine set-up with fun settings for my 34th birthday :).
52     """
53     em = M3EnigmaMachine("UKW-B", ["III", "IV", "V"]) # Pythagorean triple
54     em.set_rotors(["C", "J", "M"], ["I", "F", "U"]) # (9, 6, 21)
55     em.set_pluginboard('CR AI GM AS ON')
56
57     return em
58
59 def main():
60     em = create_craig_machine()
61

```

```

62     print('Start Enigma Machine State...')
63     print(f'\t{em}')
64
65     print('Reflector:')
66     print(f'\t{em.reflector}')
67
68     print("Rotors:")
69     for rotor in em.rotors:
70         print(f'\t{rotor!r}')
71
72     print("Plugboard:")
73     print(f'\t{em.plugboard}\n')
74
75     message_text = ('Happy thirty-fourth Birthday Craig!!!')
76     clean_text = clean_message(message_text)
77     encrypted_text = em.encode_message(clean_text)
78
79     print(f'Original Text: {message_text}')
80     print(f'Clean Text: {format_message(clean_text)}')
81     print(f'Encrypted Text: {format_message(encrypted_text)}\n')
82
83     print("Final Enigma Machine State...")
84     print(f'\t{em}')
85
86 if __name__ == '__main__':
87     main()
88
89
90
91
92
93
94
95
96 # Start Enigma Machine State...
97 #     [UKW-B, III:C:I, IV:J:F, V:M:U]
98 # Reflector:
99 #     [UKW-B, YRUHQS LDPXNGOKMIEBFZCWVJATI]
100 # Rotors:
101 #     [III, SUCAYWJLNPRTKXZBFDHVGMEQOI, notch=V, letter=C, ring=I]
102 #     [IV, UEOFDVZNWMCQSKYLPIHRBGJXTA, notch=J, letter=J, ring=F]
103 #     [V, GDKIZYWEPTVLACNSOJMXHBFRUQ, notch=Z, letter=M, ring=U]
104 # Plugboard:
105 #     [CR AI GM ON]
106
107 # Original Text: Happy thirty-fourth Birthday Craig!!!
108 # Clean Text: Happy thirt yfour thBir thday Craig
109 # Encrypted Text: VHJMV QPZYP QYUDS YZYYY FRKED UBLBN
110
111 # Final Enigma Machine State...
112 #     [UKW-B, III:D:I, IV:L:F, V:Q:U]

```