These writeups, authored by Peyton Braun, are designed to guide you through the process of solving all the challenges from the Inaugural University of Wisconsin – Stout Cybersecurity Capture the Flag (CTF) event.

This event was hosted by UW-Stout CyROC x CCDL

I hope these writeups help you gain a deeper understanding of each challenge and how to overcome them.

CTF Challenge Writeups

Each writeup will cover the following aspects of the challenge:

1. **Challenge Overview**: A brief description of the challenge.
2. **Steps to Solve**: Detailed steps, tools used, and reasoning behind each step.
3. **Tools and Methods**: Explanation of why specific tools and methods were chosen.
4. **How It Works**: Insight into the underlying concepts and the thinking process.

Challenge: "Make Alan Proud"

Challenge Overview:

Decode a flag using an online Enigma machine with the provided settings. The hint being “Alan” Turing who created the Enigma Machine.

Challenge Description:

- xased xlzdn snwia wfgnn rekze lytqc pgujf sfcis fiwfn sqxln qoemb mvlkn
- Settings as shown below:
- 3 Rotor Model Rotor 1: VI, Initial: A, Ring A Rotor 2: I, Initial: Q, Ring A Rotor 3: III, Initial L, Ring A Reflector: UKW B Plugboard: BQ CR DI EJ KW MT OS PX UZ GH

Steps to Solve:

1. Use the following Enigma machine settings on Cryptii:
    - Model: 3 Rotor
    - Rotor 1: VI, Initial: A, Ring: A
    - Rotor 2: I, Initial: Q, Ring: A
    - Rotor 3: III, Initial: L, Ring: A
    - Reflector: UKW B
    - Plugboard: BQ CR DI EJ KW MT OS PX UZ GH
2. Input the encoded flag:

    - xased xlzdn snwia wfgnn rekze lytqc pgujf sfcis fiwfn sqxln qoemb mvlkn
3. Decode the flag using the settings above on:
    - https://cryptii.com/pipes/enigma-machine
4. Decoded flag:
    - STOUTCTF{aBcDeFGHiJklMnoPQrstUvWxyZaAbBcC}

Tools and Methods:

- **Enigma Machine**: Follow the input of the encoded flag into the machine with the above settings to retrieve the decoded flag.

How It Works:

This challenge uses an Enigma machine, historically known for encryption during World War II. By simulating this on the Cryptii platform and applying the specific rotor, reflector, and plugboard configurations, the encoded text can be deciphered into its original flag format.