CYB101 Project 1

(🔗 Instructions Page)

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Reflection (Required)

🤔**Reflection Question #1:** If I had to **describe this CTF experience in 3 emojis,** they would be... (Feel free to put other comments about your experience this unit here, too!)

🤔🤓😎 It was very fun ‼️

🧠**Reflection Question #2:** How do CTFs and other practice exercises help build **a cybersecurity mindset**?

Practicing critical thinking and taking a step back to get unstuck. It's building the cyber mindset by practicing the hunt to decrypt the message.

📣 **Shoutouts:** Share appreciation for anyone who helped you out with this project or made your day a little better!

CTF Challenges (Required)

Use the answer boxes below to document any CTF challenges you completed. Be sure to include information about **how** you solved the problem – Imagine you're writing a how-to guide for future cybersecurity students!

Trivia Challenges

👥 **Challenge 1:** Honesty is Best Policy

Solution: Integrity

How to Solve: Google CIA triad and integrity is the best match for the question.

👥 **Challenge 2:** Lots of Jobs!	**Solution: Virginia**

How to Solve: Go on cyberseek.org, hover your mouse over the dark blue states and see which has the most job openings.

👥 **Challenge 3:** Hostage	**Solution: Ransomware**

How to Solve: Google: This kind of malicious software will encrypt the files on your harddrive and only provide a decryption key when you pay hackers a hefty fee, usually in cryptocurrency.

Reconnaissance Challenges

👥 **Challenge 4:** 11,185,272	**Solution: 12,978,189**

How to Solve: Google: 11,185,272 and you find that this is the 45th mersenne prime. What's next is the 46 mersenne prime, which is 12,978,189

👥 **Challenge 5:** Read Me	**Solution: h3r3syerfl@g**

How to Solve: Copy contents of txt file into cyberchef. Magic wand to find out that it's a pdf file. Rename the file extension to pdf and open it.h3r3syerfl@g

👥 **Challenge 6:** Three Even, Two Odd	**Solution: 24835**

How to Solve: Looking for 3 even numbers and 2 odd numbers. I know that the first row has 4 correct numbers. I pick the 2 even numbers they have (2,8) and assume it's correct because there must be 3 even numbers. Now I need to pick 2 more numbers from row 1. I picked 3 because that is the only number that will satisfy the conditions of row 5 assuming that numbers: 2 and 8 are correct. So right now my correct numbers are 2,8,3. Then I pick 5 because it's the only number that will satisfy row 3 assuming my current correct numbers. That makes my correct numbers 2,8,3,5. I have 2 even and 2 odd numbers, meaning I only need one more even number. I picked 4 because it's the only number that will satisfy row 2. The correct numbers are now: 2,8,3,5,4. Now I arrange them to satisfy the conditions of the rows. I use row 2 as a starting point. Row 2 has 3 correct numbers and all 3 correct numbers are in the right spot. Therefore the positions of the correct numbers now look like this: _48_5. Then I use row 5, it has two correct numbers, 2 and 3, and one of them is in the right position.

The number “2” in row 5 is in position three, but position three is taken up by the number “8” (_48_5). Therefore the number “2” cannot be in the correct position, and the number “3” is spatially accurate. That makes: _4835. There’s only one spot left and one correct number(2) to fill that spot. Therefore the answer is 24835

Cryptography Challenges

👥 **Challenge 7:** Shifty	**Solution: PleaseChangeMe**

How to Solve: Put the message into cyberchef. Use ROT13 Brute Force.

👥 **Challenge 8:** Encoded Message	**Solution: itgetsharderfromhere**

How to Solve: Put the message into cyberchef. The equal sign means base 64. Use it to decode.

👥 **Challenge 9:** Kasiski Who?	**Solution: HAVINGFUNCRACKINGCODES**

How to Solve: Using fence cypher decode with a key of 2 and ROT13 Brute Force, the key becomes “CYBER” then use the key with Vigenere decode.

👥 **Challenge 10:** But are there eggs?	**Solution: ABRACADABRA**

How to Solve: Use Bacon cypher and set translation to A/B

👥 **EXTRA Challenge 11:** Arch EXIF!	**Solution: h1ding_in_plane_s1ght**

How to Solve: Put arch.jpg into an online EXIF viewer. The camera description contains a message encrypted in Base64. Use CyberChef to decrypt.

Submission Checklist

👉*Check off each of the features you have completed.* ***You will only be graded on the features you check off.***

Reflection

- ☑ ~~Reflection Question #1 answered above~~
- ☑ ~~Reflection Question #2 answered above~~

CTF Challenges (6+ needed for full credit, 9+ needed for extra credit)

- ☑ ~~Challenge #1: Honesty is Best Policy~~
- ☑ ~~Challenge #2: Lots of Jobs!~~
- ☑ ~~Challenge #3: Hostage~~
- ☑ ~~Challenge #4: 11,185,272~~
- ☑ ~~Challenge #5: Read Me~~
- ☑ ~~Challenge #6: Three Even, Two Odd~~
- ☑ ~~Challenge #7: Shifty~~
- ☑ ~~Challenge #8: Encoded Message~~
- ☑ ~~Challenge #9: Kasiski Who?~~
- ☑ ~~Challenge #10: But are there eggs?~~
- ☑ ~~EXTRA Challenge #11: Arch EXIF!~~