Activity – Cyber Hygiene and Strong Password

What is Cyber Hygiene?

Cyber Hygiene – A Baseline Set of Practices

Cybersecurity hygiene is a set of practices for managing the most common and pervasive cybersecurity risks faced by organizations today.

1. Identify and prioritize key organizational services, products, and their supporting assets.
2. Identify, prioritize, and respond to risks to the organization's key services and products.
3. Establish an incident response plan.
4. Conduct cybersecurity education and awareness activities.
5. Establish network security and monitoring.
6. Control access based on least privilege and maintain the user access accounts.
7. Manage technology changes and use standardized secure configurations.
8. Implement controls to protect and recover data.
9. Prevent and monitor malware exposures.
10. Manage cyber risks associated with suppliers and external dependencies.
11. Perform cyber threat and vulnerability monitoring and remediation.

Sources:
- *10 Steps to Cybersecurity*, UK Government Communications Headquarters (GCHQ)
- *20 Critical Security Controls*, Center for Internet Security (CIS) aka SANS 20
- *Cybersecurity Framework*, National Institute of Standards and Technology (NIST)
- *Resilience Management Model*, Carnegie Mellon University, Software Engineering Institute CERT Division
- *Review of Cyber Hygiene Practices*, European Union Agency for Network & Information Security (ENISA)
- *Strategies to Mitigate Cyber Security Incidents*, Australian Signals Directorate (ASD)

Strong Password

- Millions of passwords were compiled into a dataset to discover the top 200 most often used passwords worldwide in 2021 by a password management service called **NordPass**.

  - Secure passwords are difficult for others to guess or for computers intended for this purpose to crack.

  - Password's cracking entails a computer doing a brute force attack on a large number of password combinations until it discovers the one that is your password. Passwords that are simple and widely used are easily cracked.

Strong Password - Findings

According to NordPass 2021 report. The most common passwords globally are:

- 123456
- 123456789
- 12345
- qwerty
- password
- 12345678
- 111111
- 123123
- 1234567890
- 1234567

https://tinyurl.com/28nmbjw9

Strong Password - Findings

- Password choices are often attached to cultural preferences. For example,
  - In the UK, "liverpool" was the third most popular password, with 224,160 hits
  - In Chile, the name of Chilean football club "colocolo" was used by 15,748 people - making it the fifth most common choice
  - "christ" was the 19th most common password used in Nigeria, used 7,169 times
  - "bismillah", an Arabic phrase meaning in the name of Allah, was used by 1,599 people in Saudi Arabia – the 30th most common choice.

Activity 1: How secure is my password?

Aim - to learn which password combinations are the hardest to guess or crack.

- Launch this site to see How Secure is your Password?.
- Enter a password of your choice to see the result.
- Begin to use increasingly complex passwords (length and variation of characters) and see how the time frame changes.
- For example, try the following passwords:
  - chocolate
  - chocolatemilkshake
  - Ch0c0l@t3
  - Ch0c0l@t3M1lksh@k3!

https://tinyurl.com/3y95h5ka

Activity 2: Design the strongest passphrase

- Write an easy-to-remember statement. This could be a lyric from a song or a scene from a movie, a narrative about a place you've visited, or any other phrase you recall. See the following example.
  - "The cat is Milo and the dog is Otis".
  - Now, take the first letter from each word to make your password (including capitalisation). E.g. TciMatdiO
  - Change the letters to numbers and symbols where possible. E.g. Tc1M&td10
  - You Can also add a symbol on the end for extra length and complexity. E.g. Tc1M&td10!
  - Use the link How Secure Is My Password? to see how secure the password you created is?

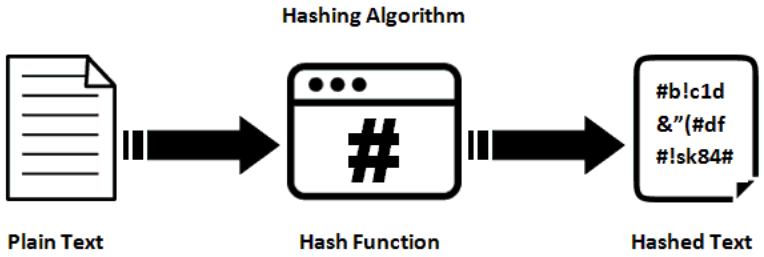
Password Cracking

- Password cracking means **recovering passwords from a computer or from data that a computer transmits**.
  - For instance, a brute-force attack where all possible combinations are checked is also password cracking.
- If the password is stored as plaintext, hacking the database gives the attacker all account information.
- Most passwords are stored using a key derivation function (KDF). This takes a password and runs it through a one-way encryption cipher, creating what's known as a "hash." The server stores the hash-version of the password.

A typical password cracking attack looks like this:

- Get the password hashes
- Prepare the hashes for a selected cracking tool
- Choose a cracking methodology
- Run the cracking tool
- Evaluate the results
- If needed, tweak the attack
- Go to Step 2

What is Hashing?



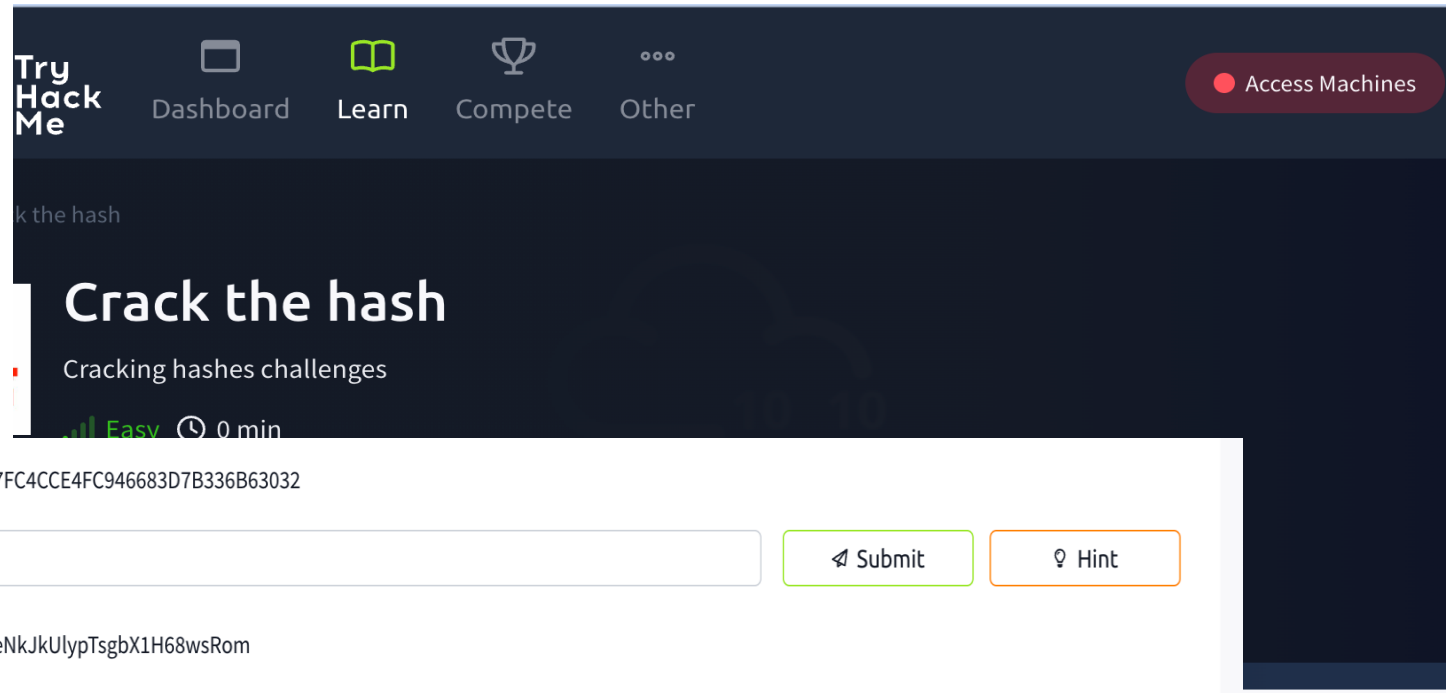
Hashing algorithms are one-way programs, so the text can't be unscrambled and decoded by anyone else.

Hashing algorithms are used extensively in cryptography for encrypting keys or messages. Examples of popular cryptographic hashing algorithms include MD2, MD4, MD5, and SHA-1. Message Digest 5 (MD5) uses a 128-bit hash, and Secure Hash Algorithm (SHA) uses a 60-bit hash. The more bits in a hash, the greater the security of the encryption process.

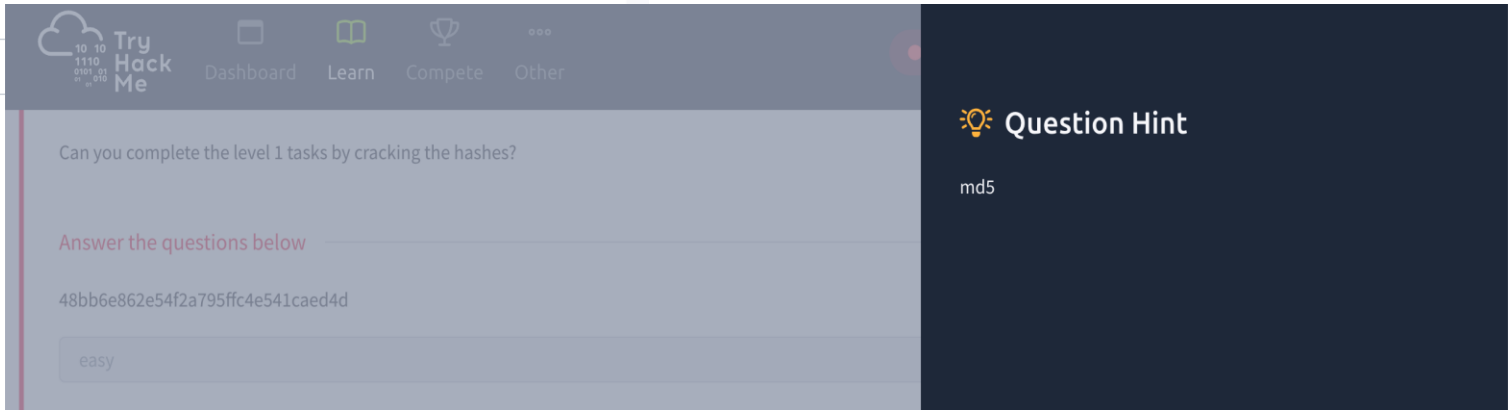
Activity 3

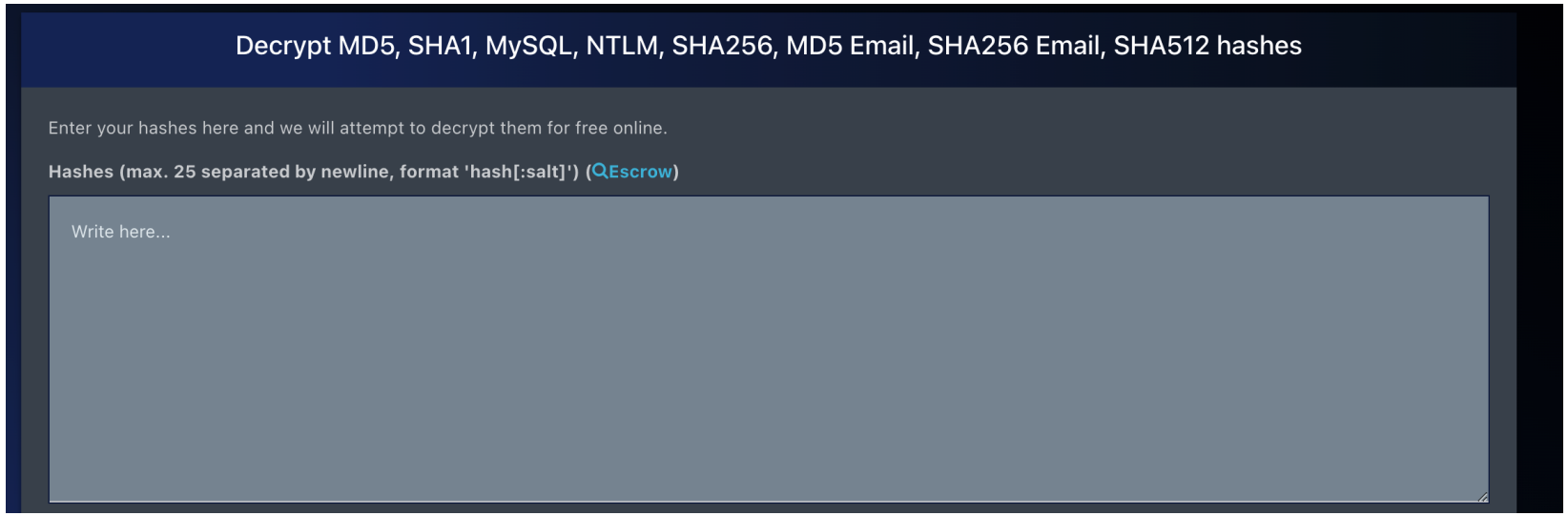
"Hash Hunt: Decrypt & Decode"

- Work in a group with at least 2 smartphones or internet-enabled devices.
- One group member will navigate to "Crack the Hash" and check all hash codes and add the answer, while the other will assist in decrypting the answers based on the provided hints (e.g. hash algorithm)
- Communicate effectively within your group to share findings and collaborate on decrypting the answers.
- Enjoy the challenge and learning experience together!



https://tryhackme.com/r/room/crackthehash





https://hashes.com/en/decrypt/hash

Password Quiz (10 questions; 100 points)

https://forms.gle/5b5iaasoifUAFvTy7