Kush Patel

Computer and Network Forensics

Assignment 1

This assignment will be performed under the Kali Linux VM.

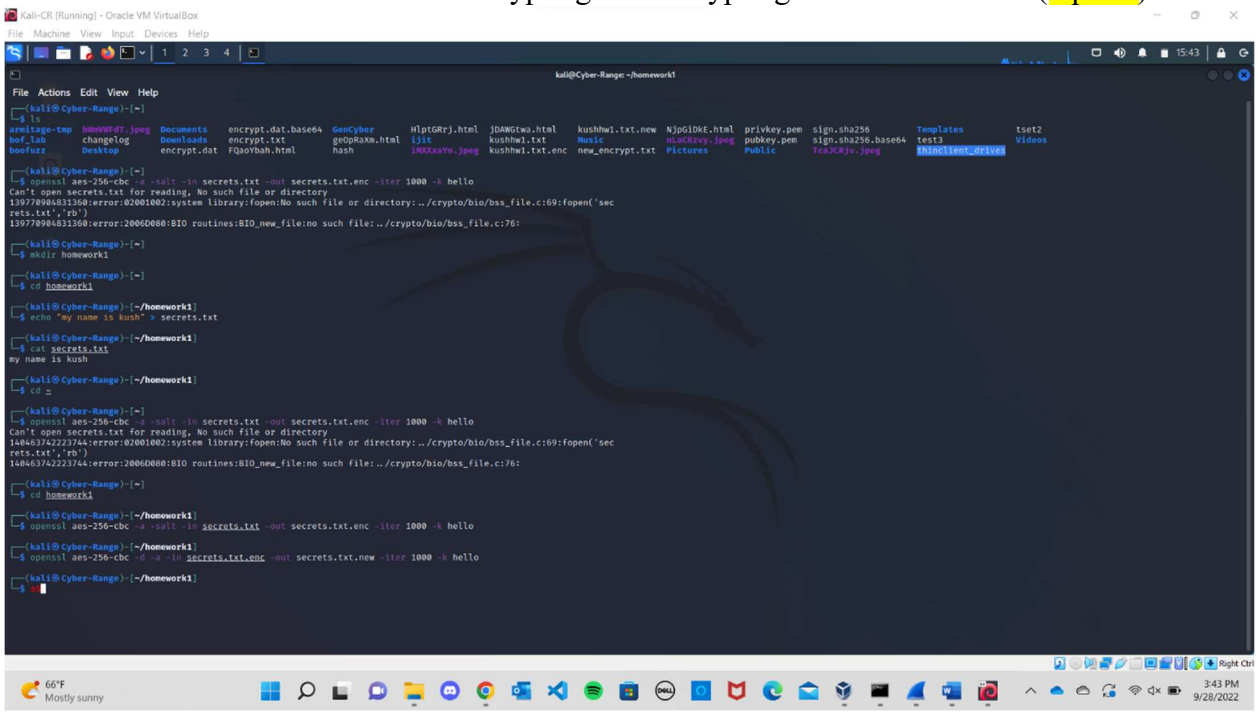
1. **Symmetric key encryption and decryption with AES**. Read https://github.com/xinwenfu/GenCyber/tree/main/SymmetricKeyCrypto and work on the hands-on labs
    a. *Hands-on 1: Decipher Caesar cipher encrypted text*. What is the plaintext message? (2 points)

    It is a period of civil wars in the galaxy. A brave alliance of underground freedom fighters has challenged the tyranny and oppression of the awesome GALACTIC EMPIRE.

    Striking from a fortress hidden among the billion stars of the galaxy, rebel spaceships have won their first victory in a battle with the powerful Imperial Starfleet. The EMPIRE fears that another defeat could bring a thousand more solar systems into the rebellion, and Imperial control over the galaxy would be lost forever.

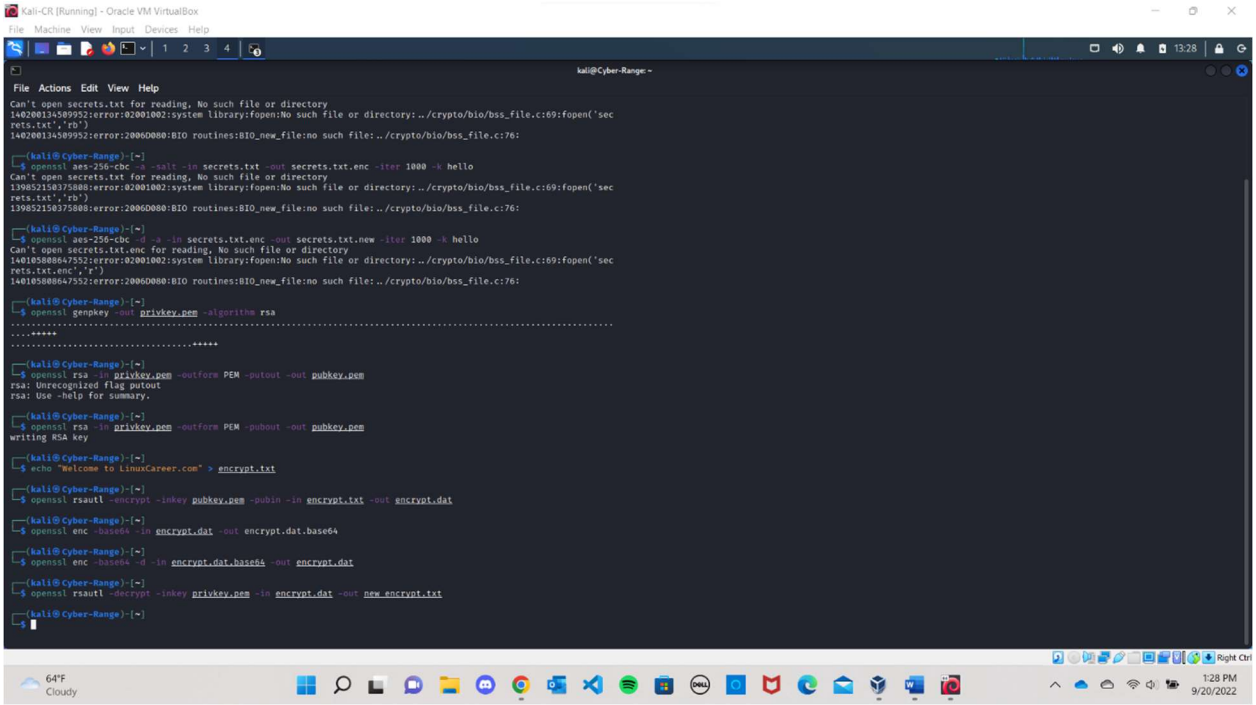
    To crush the rebellion once and for all, the EMPIRE is constructing a sinister new battle station. Powerful enough to destroy an entire planet, its completion spells certain doom for the champions of freedom.

    b. *Hands-on 4: Encrypting and Decrypting File with AES*. Include a screenshot below on the commands used on encrypting and decrypting the file with AES. (1 point)



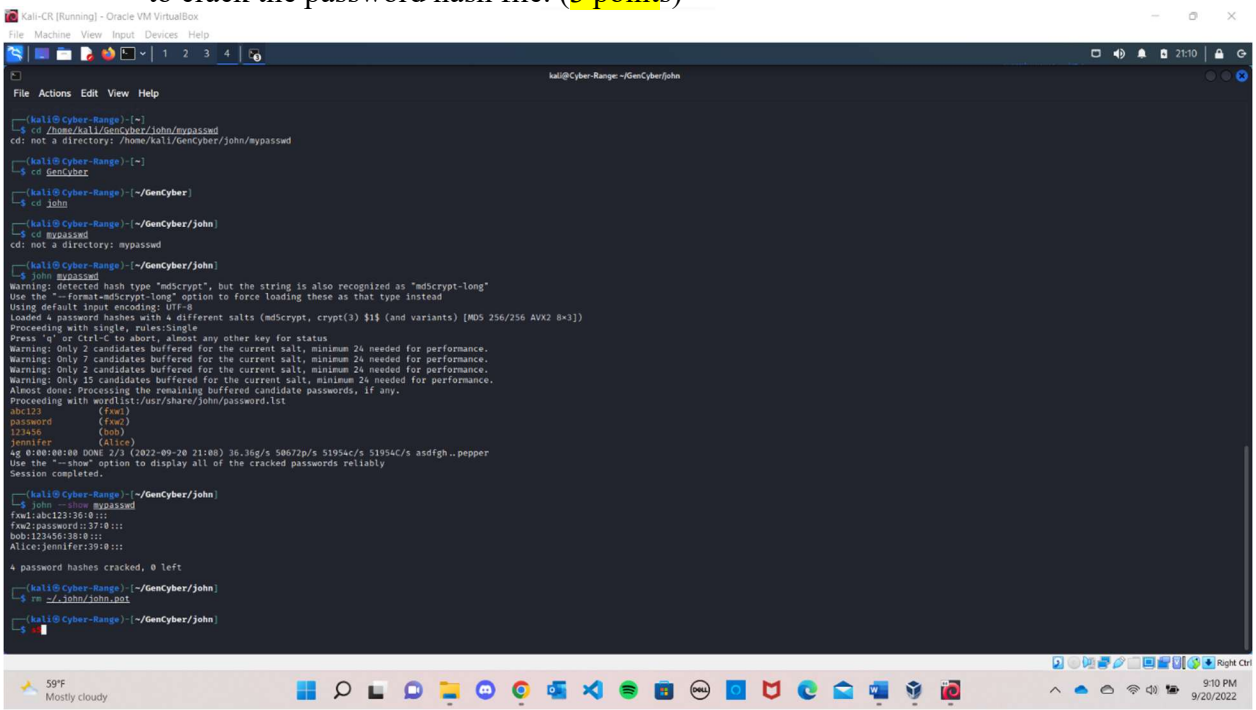
2. **Public key encryption and decryption**. Read https://github.com/xinwenfu/GenCyber/tree/main/AsymmetricKeyCrypto and work on the hands-on labs.

    a. *Hands-on 1: Use RSA to Encrypt and Decrypt a Message*. Include a screenshot below on the commands used to encrypting and decrypting a message. (3 points)

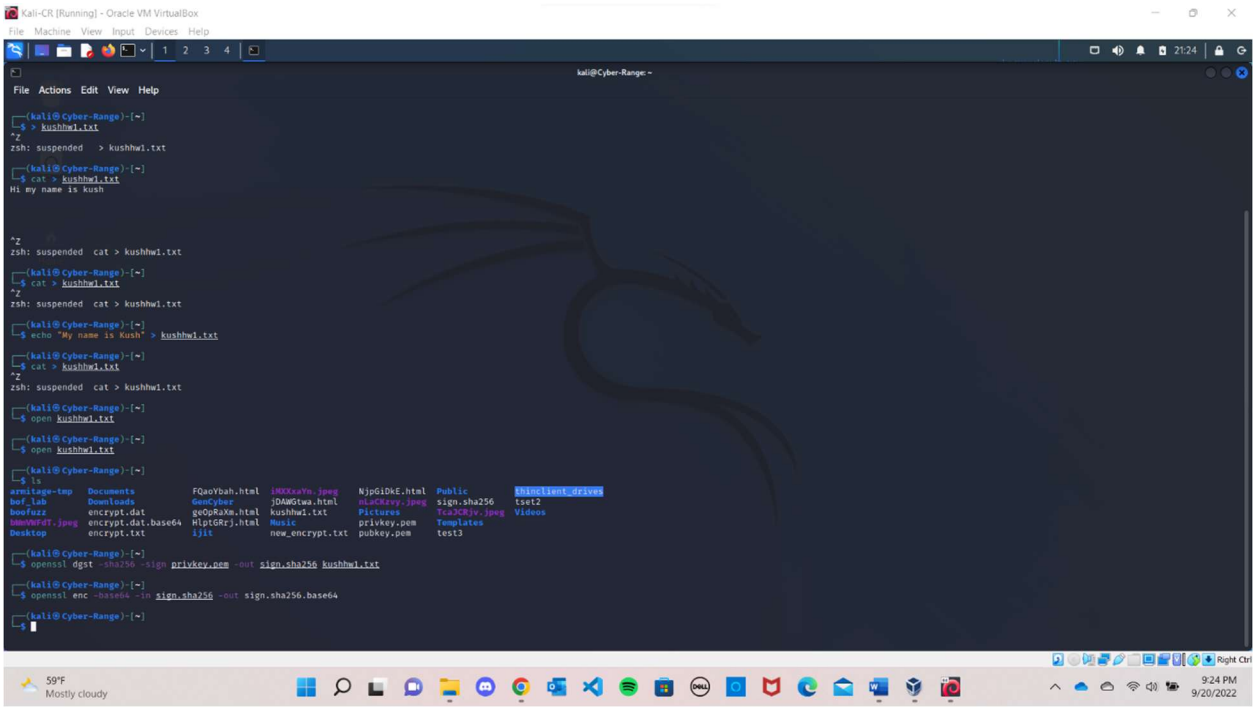


3. **Hash**. Please read https://github.com/xinwenfu/GenCyber/tree/main/Hash and work on the hands-on labs.

    a. *Hands-on 3: Password Cracking*. Include a screenshot below on the commands used to crack the password hash file. (3 points)



4. **Digital signature**. Please read https://github.com/xinwenfu/GenCyber/tree/main/DigitalSignature and work on the hands-on labs. The instructions in the hands-on were for two students working together. In this assignment, a student works alone on the hands-on. Please create two folders, one for "sender" and the other for "receiver" to hold related files, and pretend to the sender and receiver at the same time.
    a. *Hands-on 3: One student as Sender: Sign a file*. Include a screenshot below on the commands used to sign the file. (1 point)



    b. *Hands-on 4: Another Student as Receiver: Verify the Signature*. Include a screenshot below on the commands used to verify the signature. (1 point)