Decrypt an Encrypted Message

Skills Acquired:

- List hidden files
- Decrypt a Caesar cipher
- Decrypt an encrypted file

Scenario:

In this scenario, all of the files in your home directory have been encrypted. You'll need to use Linux commands to break the Caesar cipher and decrypt the files so that you can read the hidden messages they contain.

Task 1. Read the contents of a file

The lab starts in your home directory, /home/analyst, as the current working directory.

In this task, you need to explore the contents of your home directory and read the contents of a file to get further instructions.

1. Use the ls command to list the files in the current working directory.

Two files, Q1.encrypted and README.txt, and a subdirectory, caesar, are listed:

The README.txt file contains an important message with instructions you need to follow.

2. Use the cat command to list the contents of the README.txt file.

The message in the README.txt file advises that the caesar subdirectory contains a hidden file.

In the next task, you'll need to find the hidden file and solve the Caesar cipher that protects it. The file contains instructions on how to recover your data.

```
analyst@fb33b92c02f2:~$ ls
Q1.encrypted  README.txt  caesar
analyst@fb33b92c02f2:~$ cat README.txt
Hello,
All of your data has been encrypted. To recover your data, you will need to solve a cipher.
 To get started look for a hidden file in the caesar subdirectory.
analyst@fb33b92c02f2:~$
```

Task 2. Find a hidden file

In this task, you need to find a hidden file in your home directory and decrypt the Caesar cipher it contains. This task will enable you to complete the next task.

1. First, use the `cd` command to change to the `caesar` subdirectory of your home directory:
2. Use the `ls -a` command to list all files, including hidden files, in your home directory.

This will display the following output:

```
. .. .leftShift3
```

Hidden files in Linux can be identified by their name starting with a period (.).

3. Use the `cat` command to list the contents of the `.leftShift3` file.

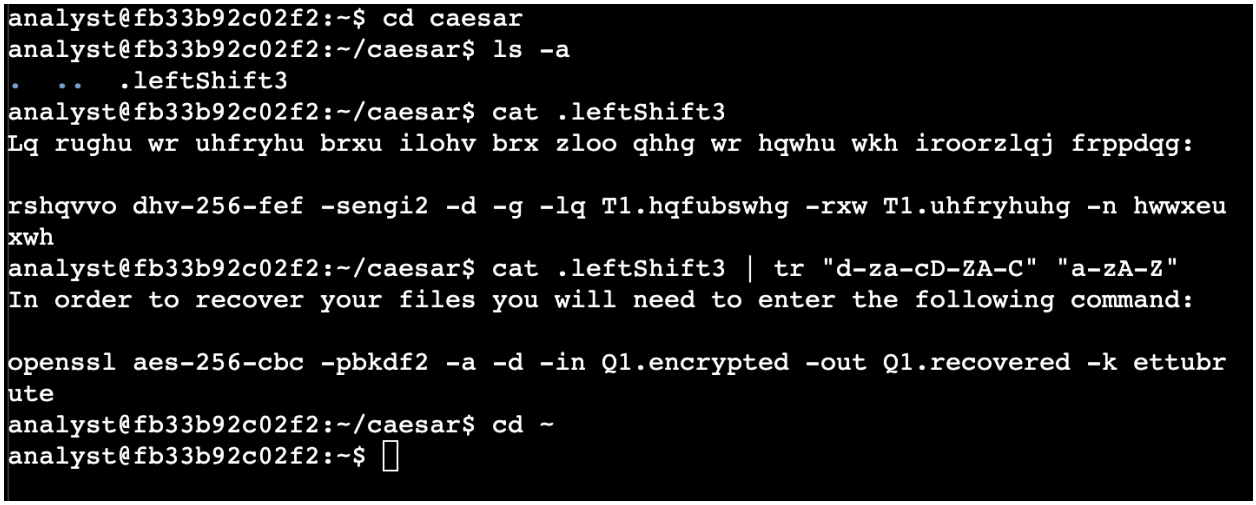
The message in the `.leftShift3` file appears to be scrambled. This is because the data has been encrypted using a Caesar cipher. This cipher can be solved by shifting each alphabet character to the left or right by a fixed number of spaces. In this example, the shift is three letters to the left. Thus "d" stands for "a", and "e" stands for "b".

4. You can decrypt the Caesar cipher in the `.leftshift3` file by using the following command:

cat .leftShift3 | tr "d-za-cD-ZA-C" "a-zA-Z"

In this case, the command tr "d-za-cD-ZA-C" "a-zA-Z" translates all the lowercase and uppercase letters in the alphabet back to their original position. The first character set, indicated by "d-za-cD-ZA-C", is translated to the second character set, which is "a-zA-Z".

5. Now, return to your home directory before completing the next task:



Task 3. Decrypt a file

Now that you have solved the Caesar cipher, in this task you need to use the command revealed in .leftshift3 to decrypt a file and recover your data so you can read the message it contains.

1. Use the exact command revealed in the previous task to decrypt the encrypted file:

```
openssl aes-256-cbc -pbkdf2 -a -d -in Q1.encrypted -out Q1.recovered -k ettubrute
```

2. Use the ls command to list the contents of your current working directory again.

The new file Q1.recovered in the directory listing is the decrypted file and contains a message.

3. Use the cat command to list the contents of the Q1.recovered file.