

Introduction to Information Security & Forensics

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Assignment 02

Submitted to Sir *Amir Zaheer*

Introduction to Information Security & Forensics

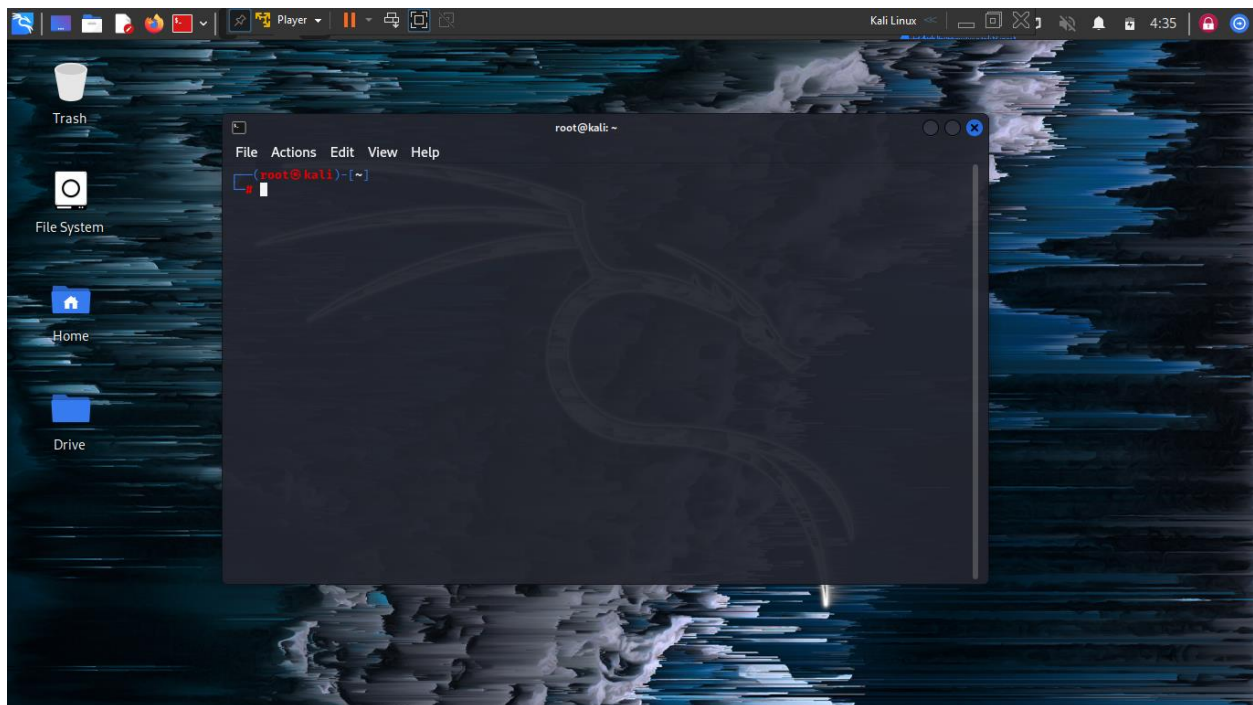
Question 1

In this class, you have already installed Kali Linux. This portion of assignment will be performed on Kali Linux by running following commands with their description. Take screenshot of each step and submit screenshot with description of each step.

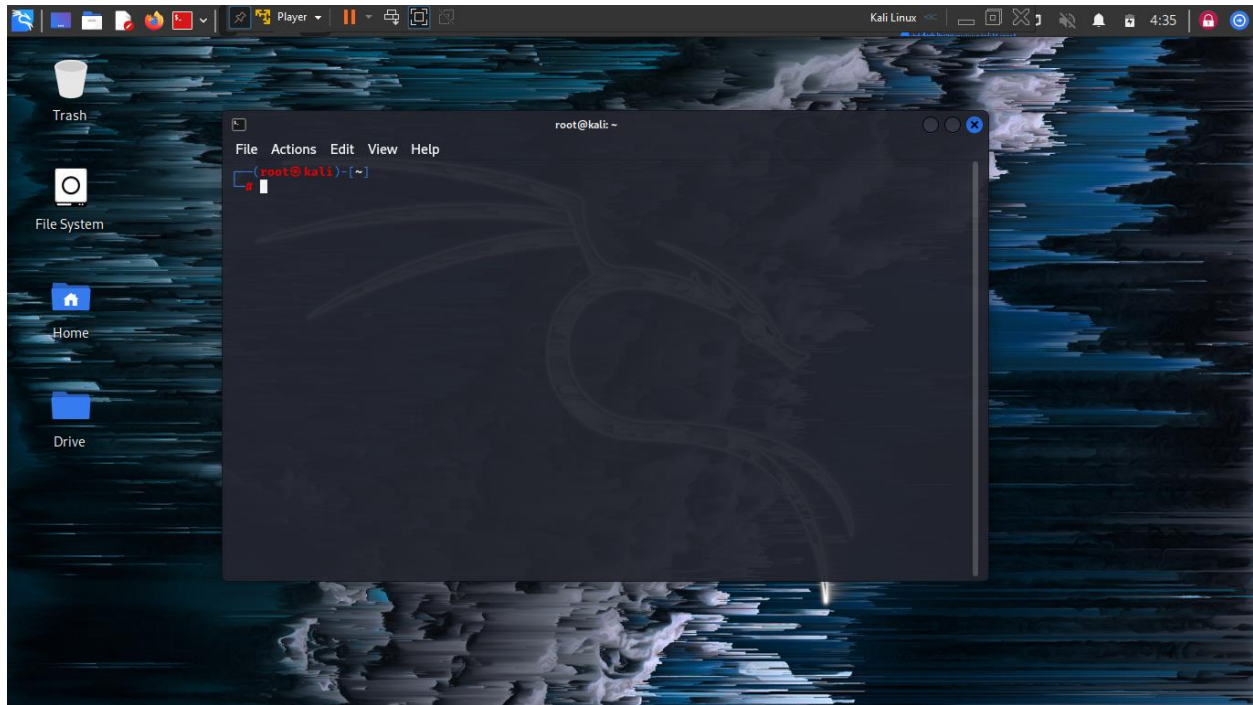
Take screen shot of all steps and add in assignment report.

What is your learning in this lab? Express in three lines.

1. Execute command Line in Kali Linux.

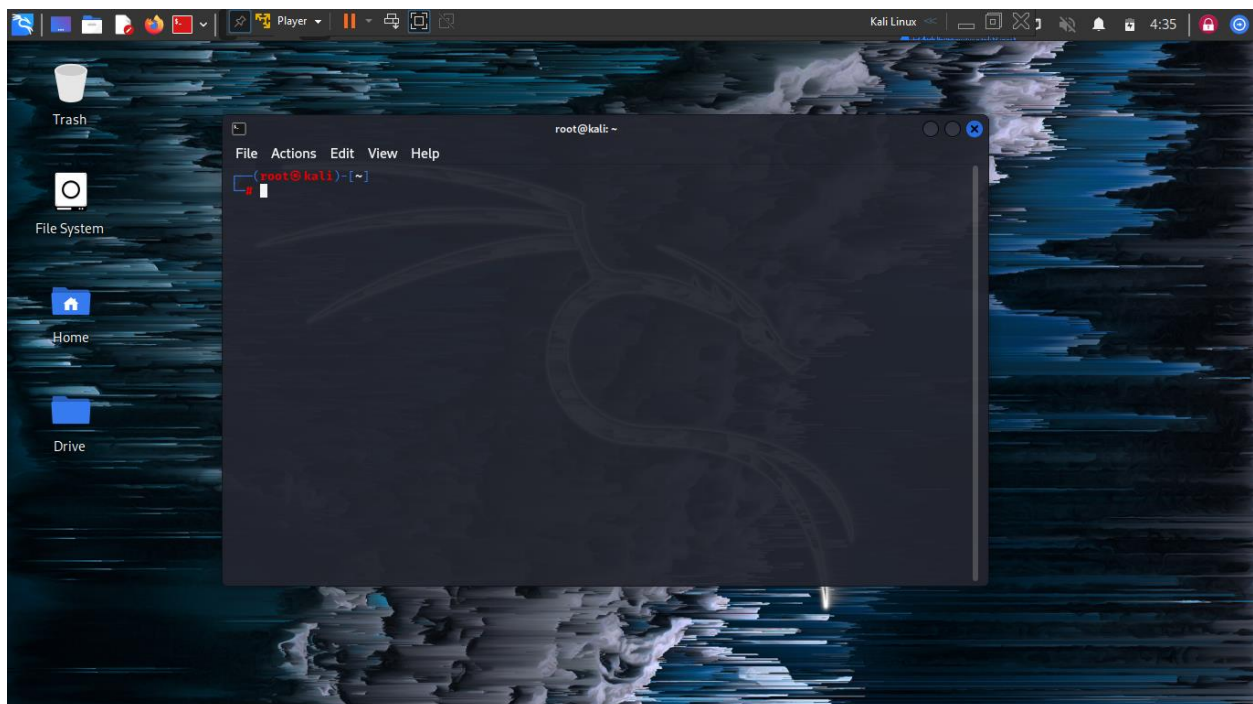


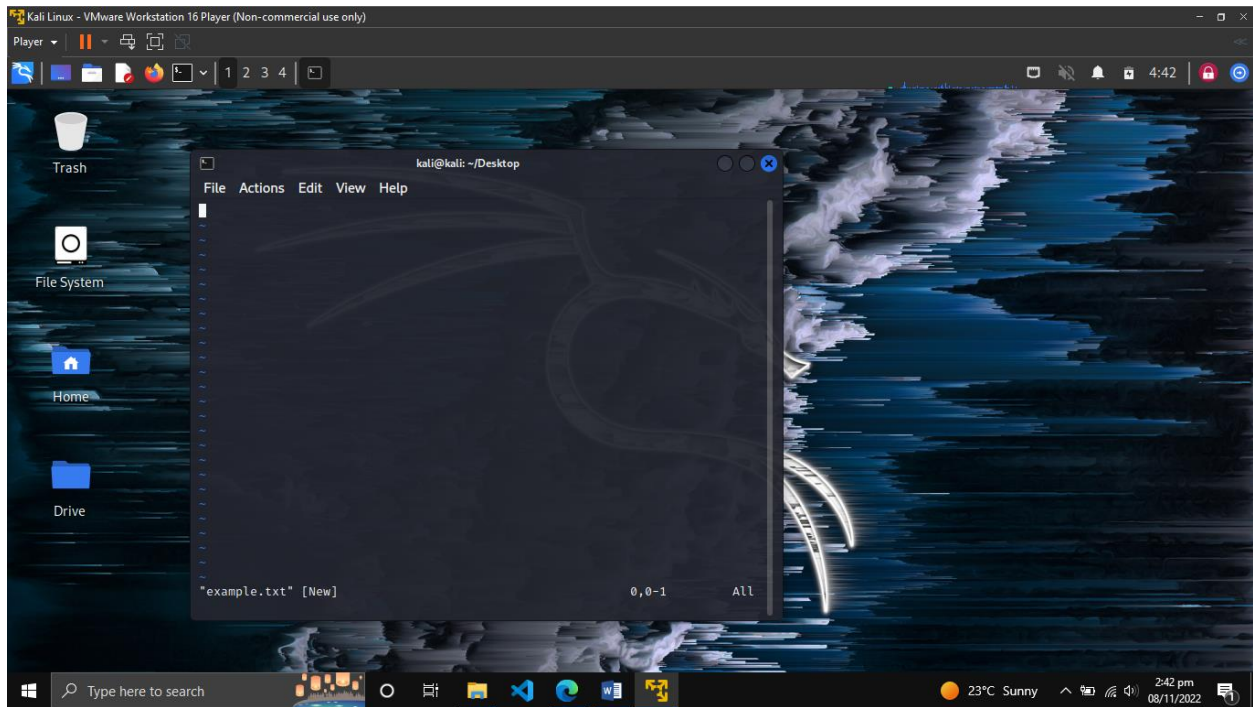
2. Change working directory of command line from existing directory to Desktop of Kali Linux.



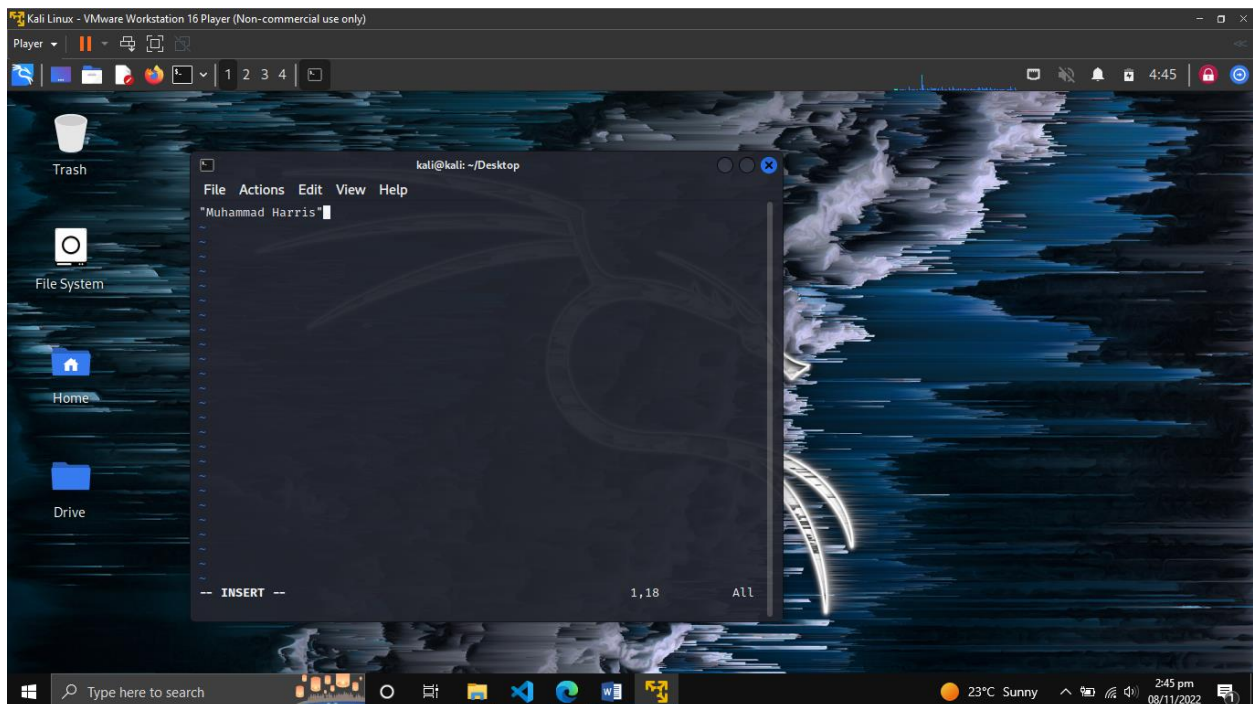
3. At command prompt, execute following command to create new file using vi editor.

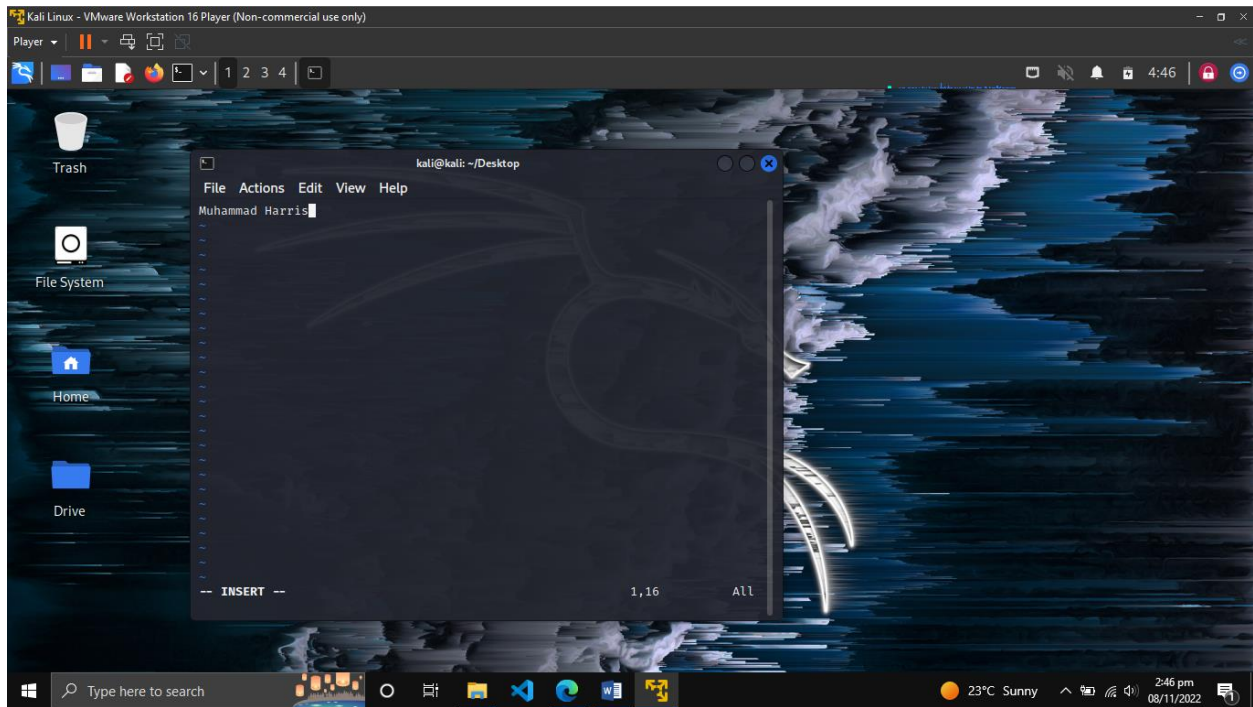
vi example.txt



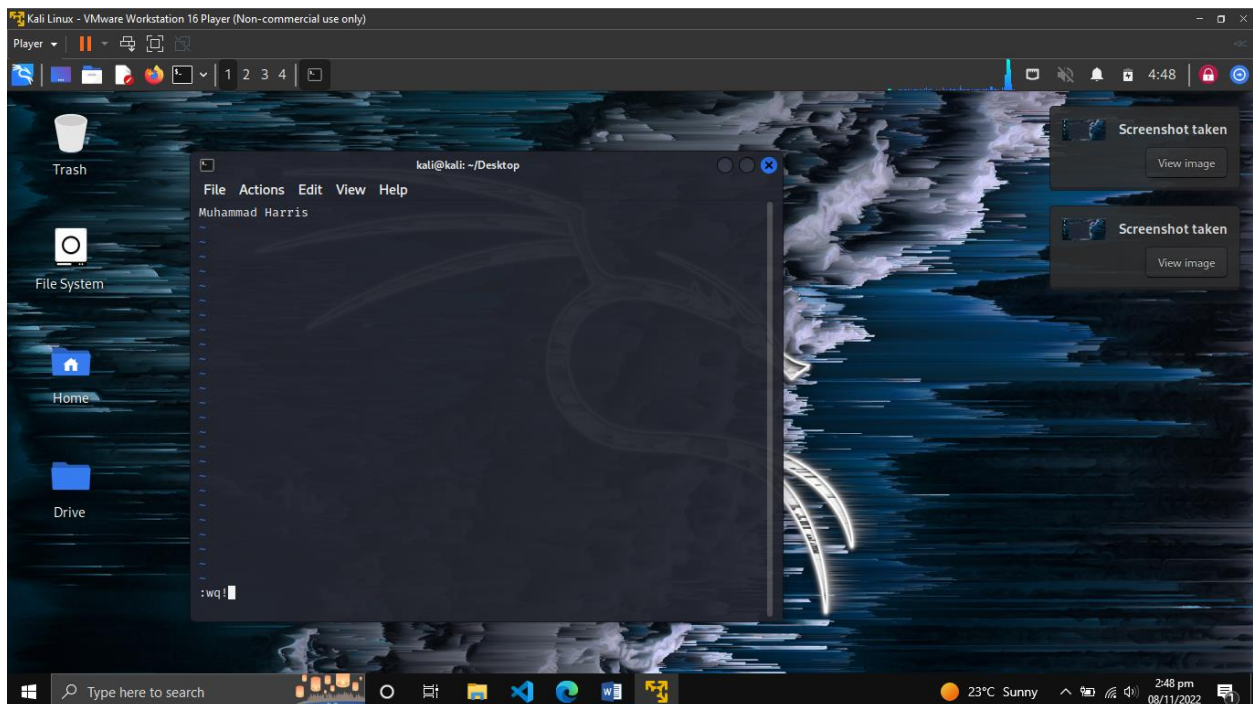


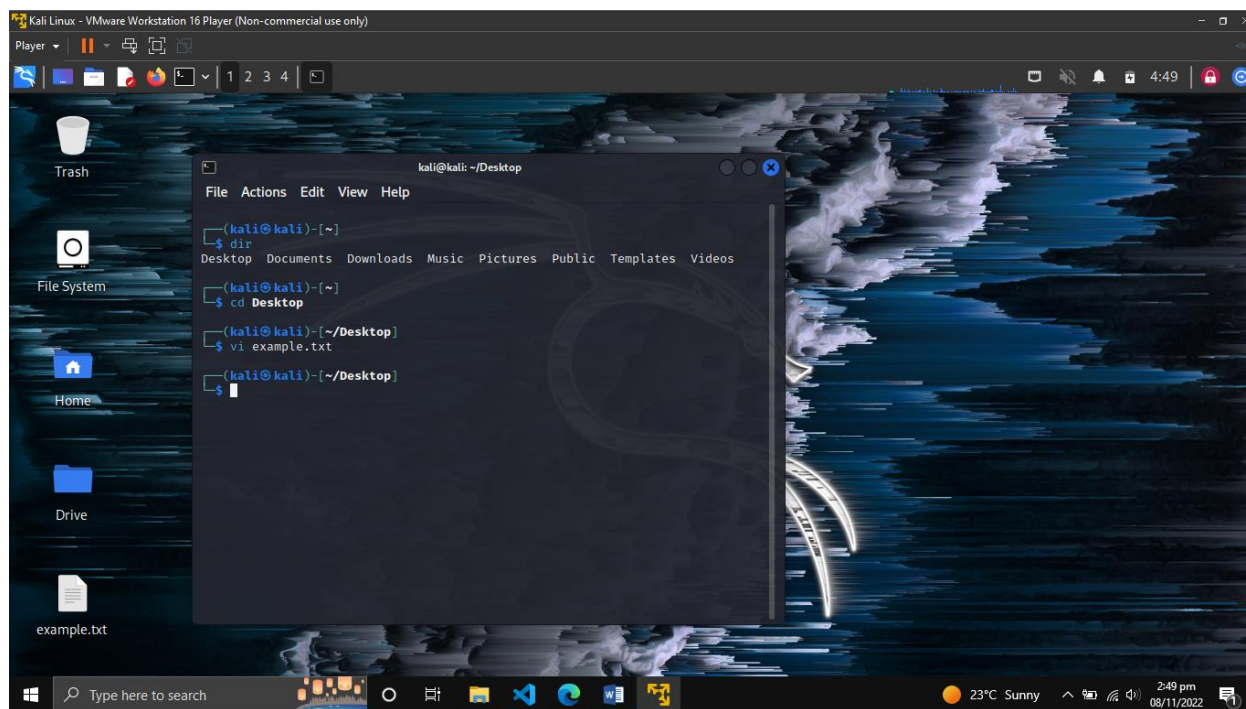
4. Press i to enter in edit mode of vi editor, then add “YourName”. Replace “YourName” with your name.



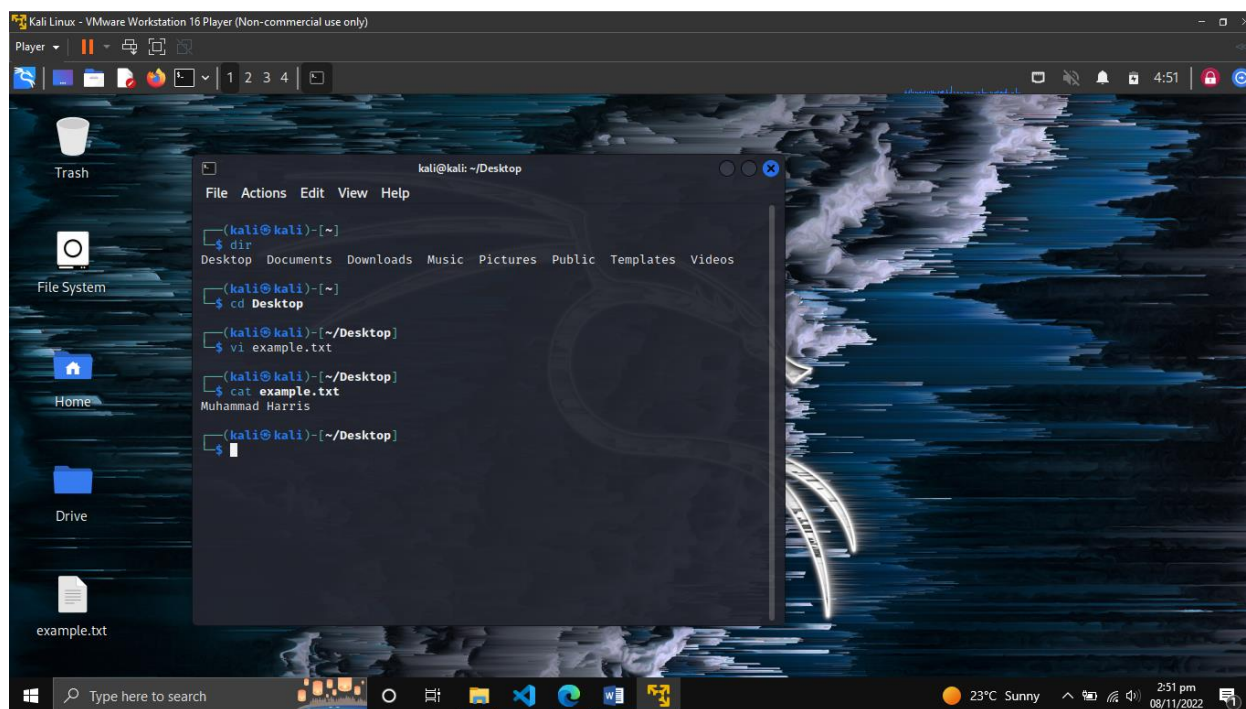


5. In vi editor, press **Esc** button to exit edit mode, then type **:wq!** and press enter to save changes in file.

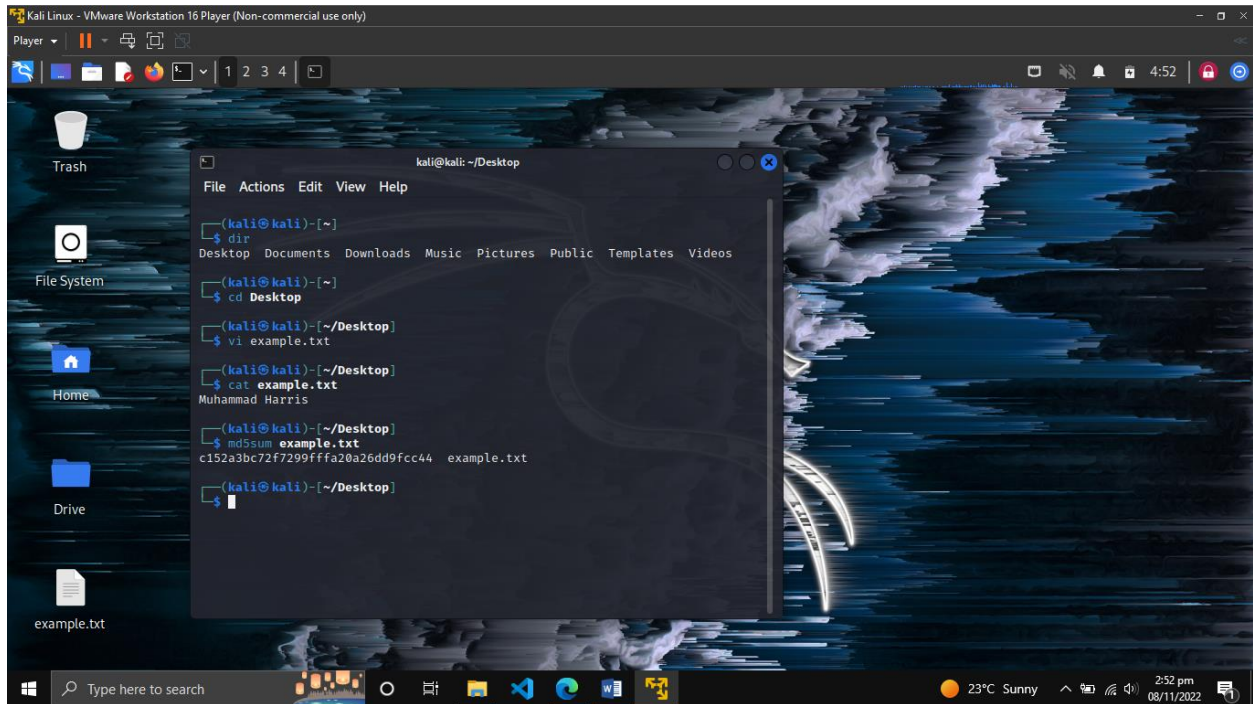




6. At command prompt, type **cat example.txt** to display the content of file.



- At command prompt, type **md5sum example.txt** to create hash on the example.txt file.

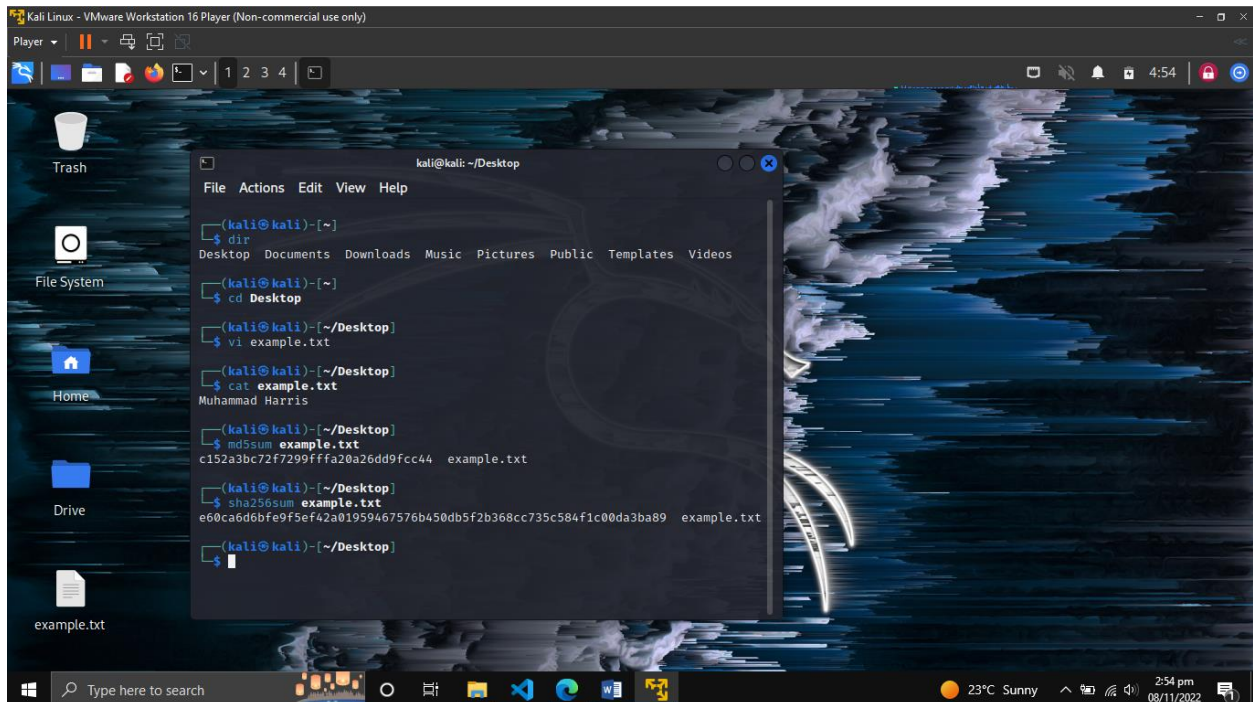


The screenshot shows a Kali Linux desktop environment with a terminal window open. The terminal displays the following commands and output:

```
kali@kali: ~/Desktop
$ dir
Desktop Documents Downloads Music Pictures Public Templates Videos
$ cd Desktop
$ vi example.txt
$ cat example.txt
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$ md5sum example.txt
c152a3bc72f7299fffa20a26dd9fcc44 example.txt
```

The desktop background is a dark, abstract image. The terminal window has a menu bar with 'File', 'Actions', 'Edit', 'View', and 'Help'. The desktop icons include 'Trash', 'File System', 'Home', 'Drive', and 'example.txt'. The taskbar at the bottom shows various application icons and system status information: 23°C Sunny, 2:52 pm, 08/11/2022.

- At command prompt, type **sha256sum example.txt** to create hash on the example.txt file.



The screenshot shows the same Kali Linux desktop environment as the previous one, but with an additional command executed in the terminal. The terminal output now includes the SHA256 hash for the file:

```
kali@kali: ~/Desktop
$ dir
Desktop Documents Downloads Music Pictures Public Templates Videos
$ cd Desktop
$ vi example.txt
$ cat example.txt
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$ md5sum example.txt
c152a3bc72f7299fffa20a26dd9fcc44 example.txt
$ sha256sum example.txt
e60ca6db6fe9f95ef42a01959467576b450db5f2b368cc735c584f1c00da3ba89 example.txt
```

The desktop background, icons, and taskbar remain the same as in the previous screenshot.

In this task, I learned how to create, edit and save text files and how to compute their Hash using MD5 and SHA hashing algorithms within Kali terminal.

Question 2

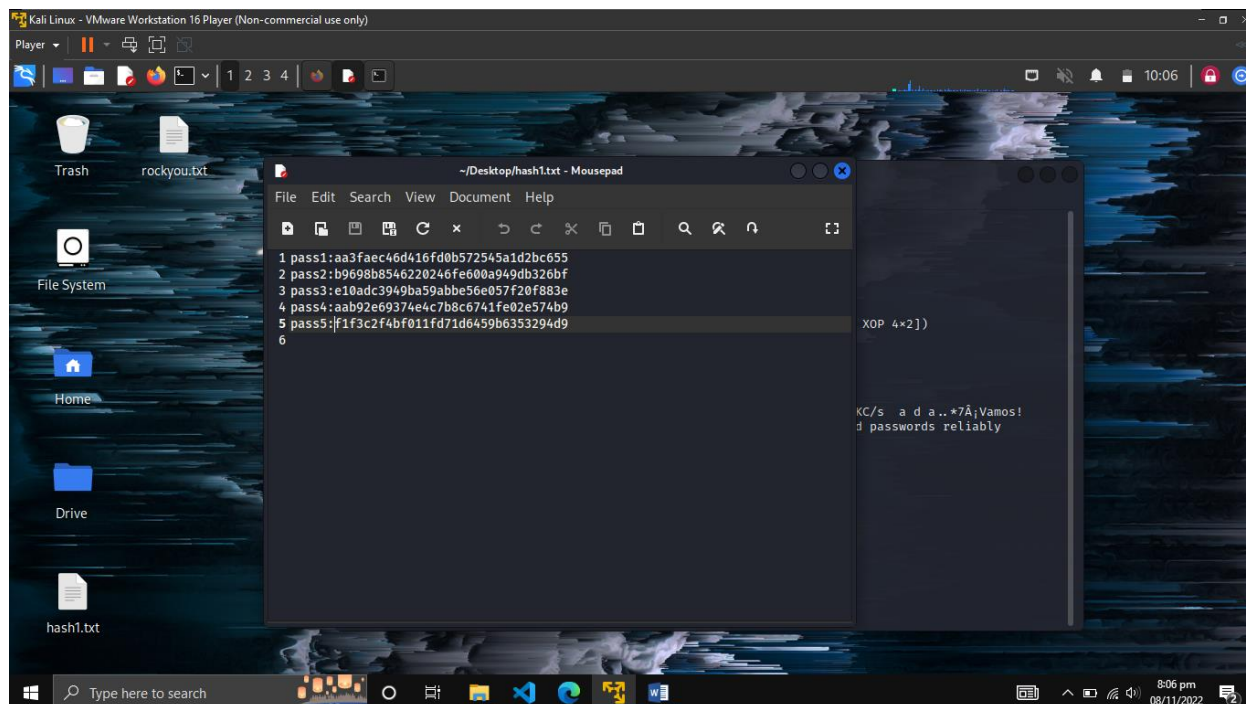
I hope you have installed Kali Linux Virtual Machine on your side. Kali Linux Operating System is equipped with John the Reaper, an open-source password cracking tool. Your job is to crack the hash to password by using hashes given below. These hashes are generated with MD-5 hashing algorithm. At the end of this job, you are required to fill the table with correct passwords. Also attach screenshot of each password cracking result displayed by John the Reaper. Without screenshot, you will not get marks in this question and screen shot must display the complete desktop of your system.

Screenshot provided on next page

Sr. no	Hash of Password	Password
1	aa3faec46d416fd0b572545a1d2bc655	Not Found
2	b9698b8546220246fe600a949db326bf	<i>Pakistan</i>
3	e10adc3949ba59abbe56e057f20f883e	<i>123456</i>
4	aab92e69374e4c7b8c6741fe02e574b9	<i>weather</i>
5	f1f3c2f4bf011fd71d6459b6353294d9	Not Found

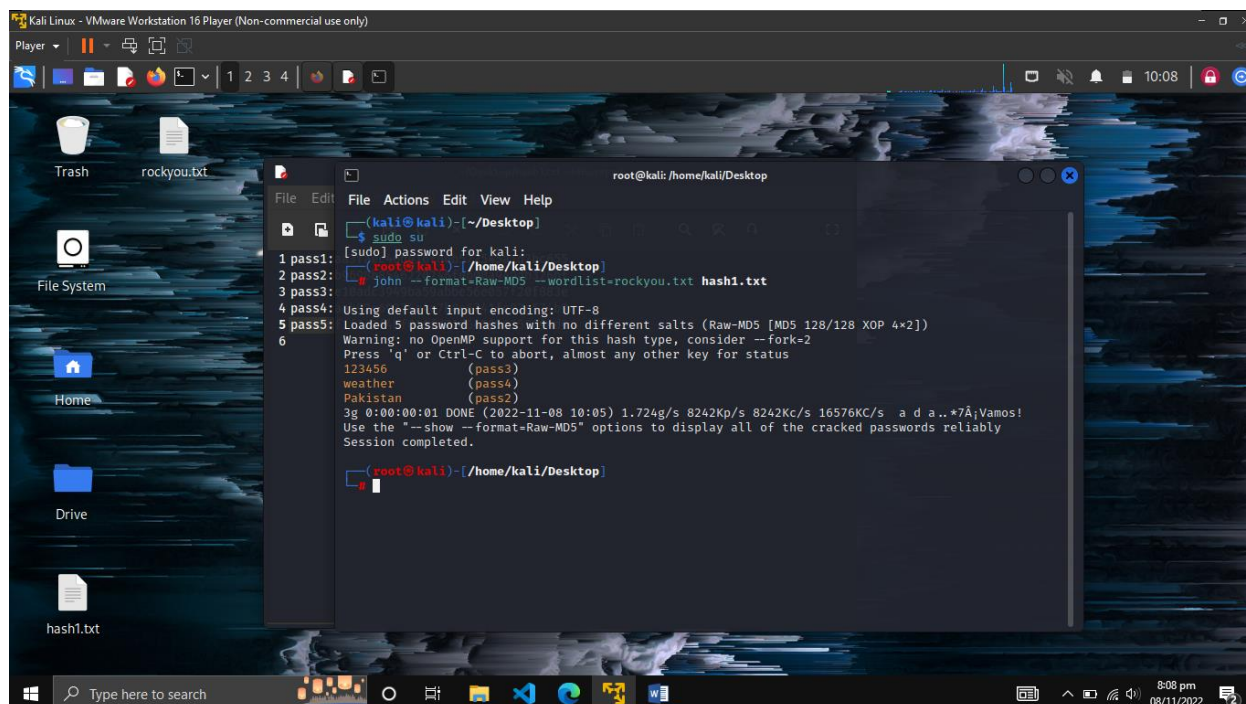
Screenshots:

1. Writing all hashes in a text file named hash1.txt



2. Searching files in rockyou.txt (/usr/share/wordlist/rockyou.txt) using john the ripper.

Hash 1 and Hash 5 were not cracked even with iterative brute force.

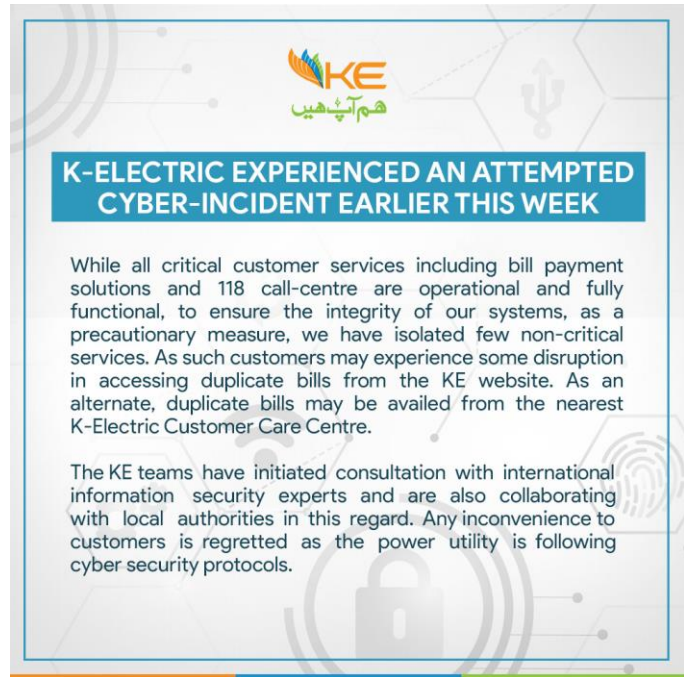


Question 3

Search at least two organizations that has attacked with Ransomware virus and the organizations paid heavy amount in return of data. Add description and link of your search and screen shots where required.

1. K-Electric:

On 7th September 2020, K-Electric, Pakistan's largest power supplier was hit by a Netwalker Ransomware. This disrupted multiple online services including customer billing. However, power delivery services were not affected. Attacker gave K-Electric a seven-day deadline to pay a ransom of \$3.85 million in Bitcoins and threatened to double the amount if their demands are not met.



K-Electric added a cyber-attack notice on its website, updating customers regarding online services usage. However, the company didn't disclosed any more information regarding the attack. Since online services was affected, K-electric supported customer through their call centre.

2. University of California San Francisco

During the COVID-19 pandemic, on 5th March 2020, University of California, San Francisco fell victim to attack by Netwalker ransomware. University officials confirmed that the organization paid a ransom of \$1.14 million to the criminals behind the attack.

Netwalker hackers had encrypted data that was important for university to continue their academic activities. Hence, they decided to pay attackers the ransom in exchange for the tools to decrypt their data. According to a BBC report, the hackers were originally demanding a ransom of \$3 million (£2.4 million), but this was negotiated down by a UCSF representative.

References

1. Ali, K. (2020, September 10). *K-Electric Services hit by cyber attack*. Retrieved from Tribune News: <https://tribune.com.pk/story/2263343/k-electric-services-hit-by-cyberattack>
2. Jajja, S. (2020, September 10). *K-Electric struck by 'Ransomware'*. Retrieved from Dawn News: <https://www.dawn.com/news/1578882>
3. Winder, D. (2020, March 20). *The University Of California Pays \$1 Million Ransom Following Cyber Attack*. Retrieved from Forbes: <https://www.forbes.com/sites/daveywinder/2020/06/29/the-university-of-california-pays-1-million-ransom-following-cyber-attack/?sh=1c6cfee218a8>