

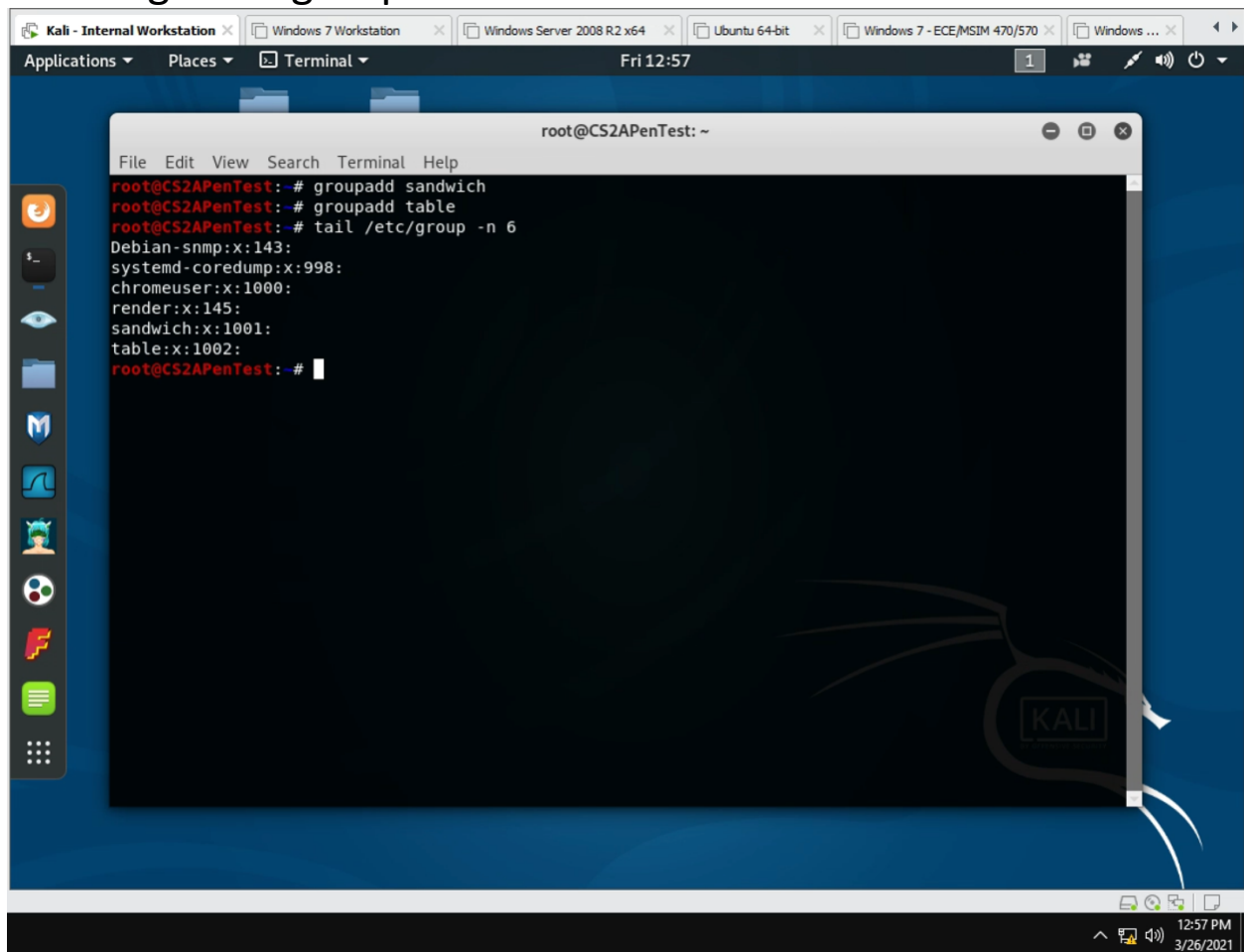
# **Old Dominion University**

## **CYSE 301 CYBERSECURITY TECHNIQUES AND OPERATIONS**

### **Assignment M4.1 – Linux Password Cracking**

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## Creating the 2 groups:

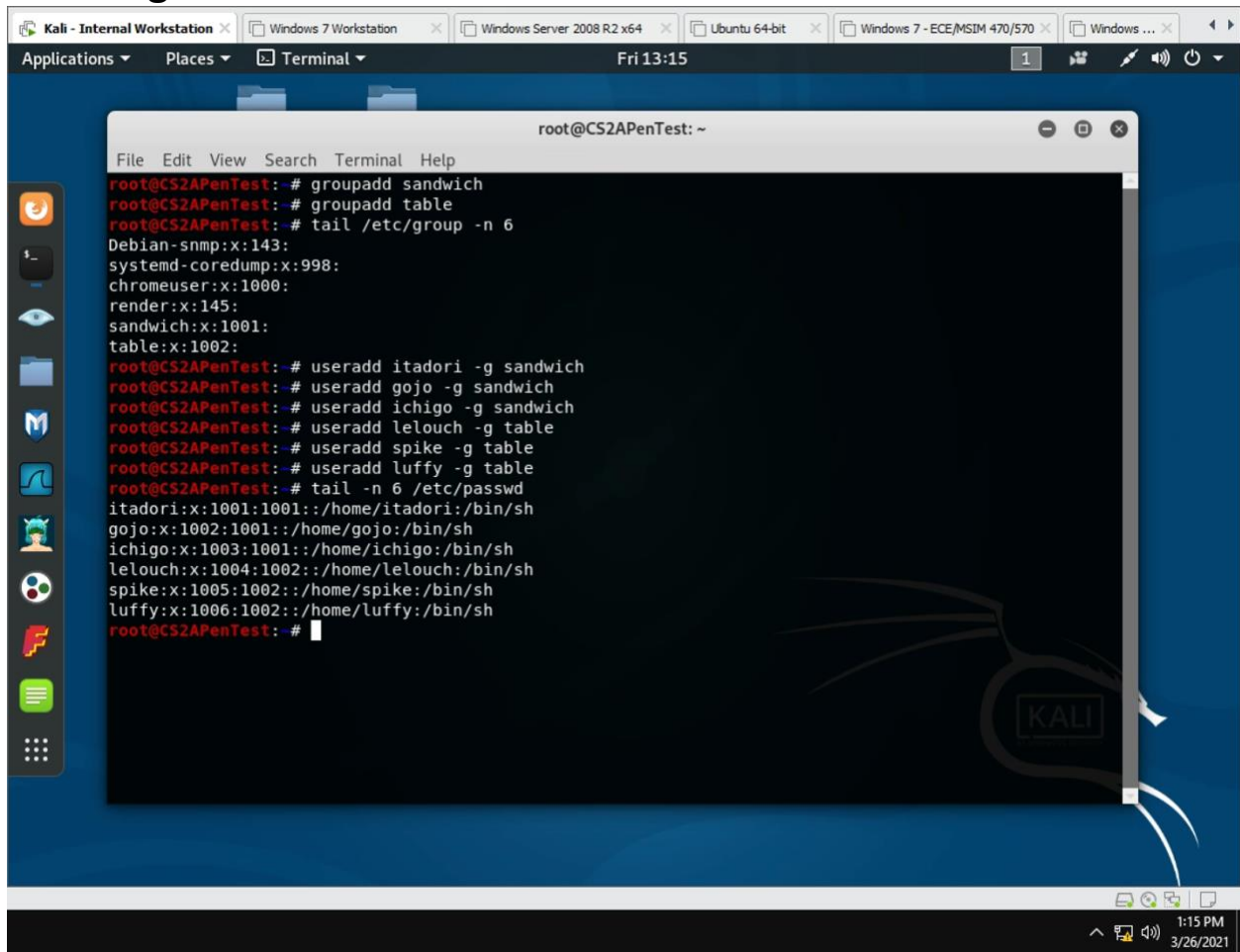


The screenshot shows a Kali Linux desktop environment. At the top, there is a taskbar with several window tabs: 'Kali - Internal Workstation', 'Windows 7 Workstation', 'Windows Server 2008 R2 x64', 'Ubuntu 64-bit', 'Windows 7 - ECE/MSIM 470/570', and 'Windows ...'. Below the taskbar is a menu bar with 'Applications', 'Places', and 'Terminal' (which is selected). The main desktop area has a blue background with a 'KALI' logo. A terminal window is open in the center, titled 'root@CS2APenTest: ~'. The terminal shows the following commands and output:

```
root@CS2APenTest:~# groupadd sandwich
root@CS2APenTest:~# groupadd table
root@CS2APenTest:~# tail /etc/group -n 6
Debian-snmp:x:143:
systemd-coredump:x:998:
chromeuser:x:1000:
render:x:145:
sandwich:x:1001:
table:x:1002:
root@CS2APenTest:~#
```

The terminal window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The desktop also features a vertical dock on the left with various application icons. At the bottom right, the system tray shows the time '12:57 PM' and the date '3/26/2021'.

## Creating users.

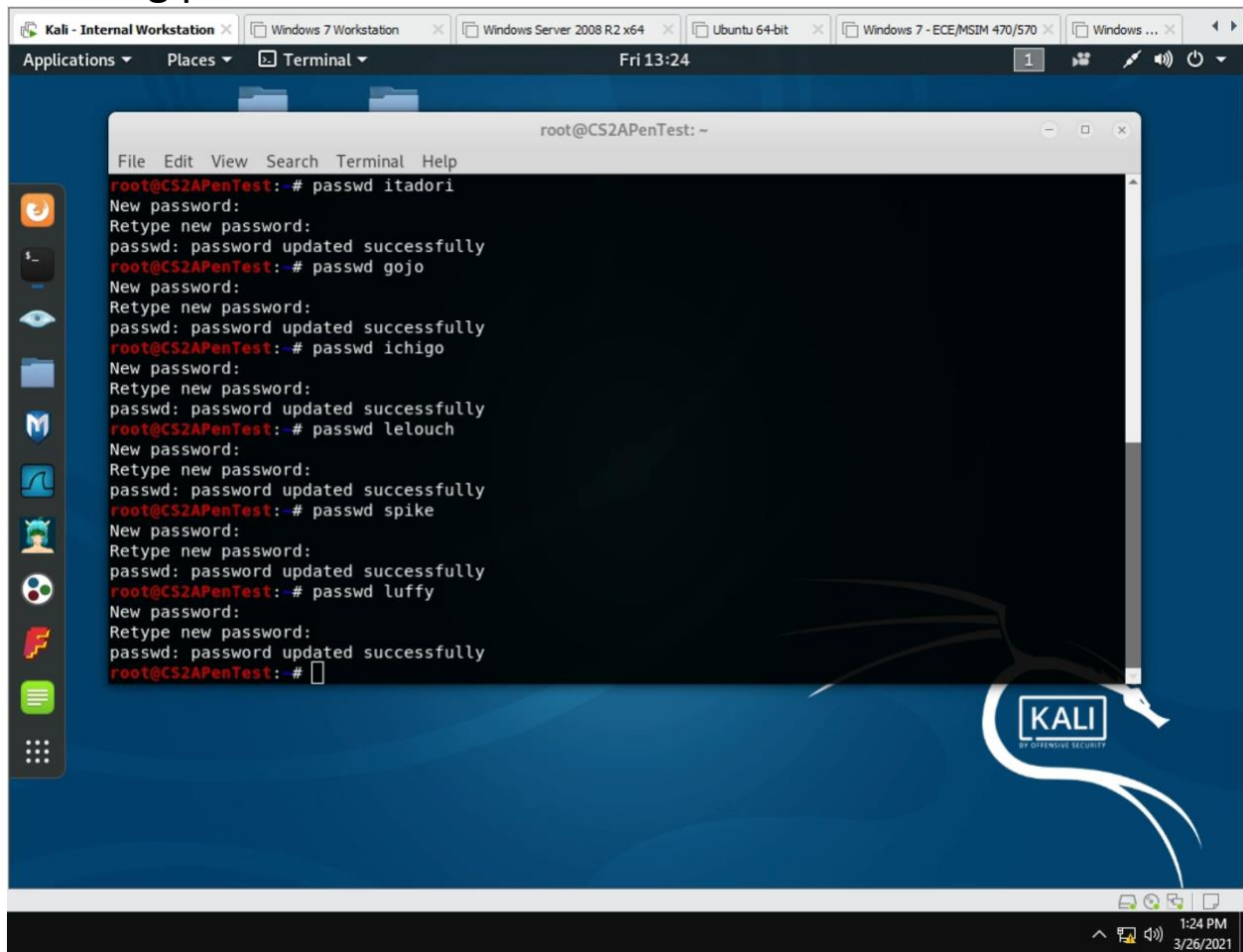


The screenshot shows a Kali Linux desktop environment with a terminal window open. The terminal window title is "root@CS2APenTest: ~". The terminal output shows the following commands and their results:

```
root@CS2APenTest:~# groupadd sandwich
root@CS2APenTest:~# groupadd table
root@CS2APenTest:~# tail /etc/group -n 6
Debian-snmp:x:143:
systemd-coredump:x:998:
chromeuser:x:1000:
render:x:145:
sandwich:x:1001:
table:x:1002:
root@CS2APenTest:~# useradd itadori -g sandwich
root@CS2APenTest:~# useradd gojo -g sandwich
root@CS2APenTest:~# useradd ichigo -g sandwich
root@CS2APenTest:~# useradd lelouch -g table
root@CS2APenTest:~# useradd spike -g table
root@CS2APenTest:~# useradd luffy -g table
root@CS2APenTest:~# tail -n 6 /etc/passwd
itadori:x:1001:1001::/home/itadori:/bin/sh
gojo:x:1002:1001::/home/gojo:/bin/sh
ichigo:x:1003:1001::/home/ichigo:/bin/sh
lelouch:x:1004:1002::/home/lelouch:/bin/sh
spike:x:1005:1002::/home/spike:/bin/sh
luffy:x:1006:1002::/home/luffy:/bin/sh
root@CS2APenTest:~#
```

The terminal window is part of a desktop environment with a taskbar on the left and a system tray on the bottom right. The system tray shows the time as 1:15 PM on 3/26/2021.

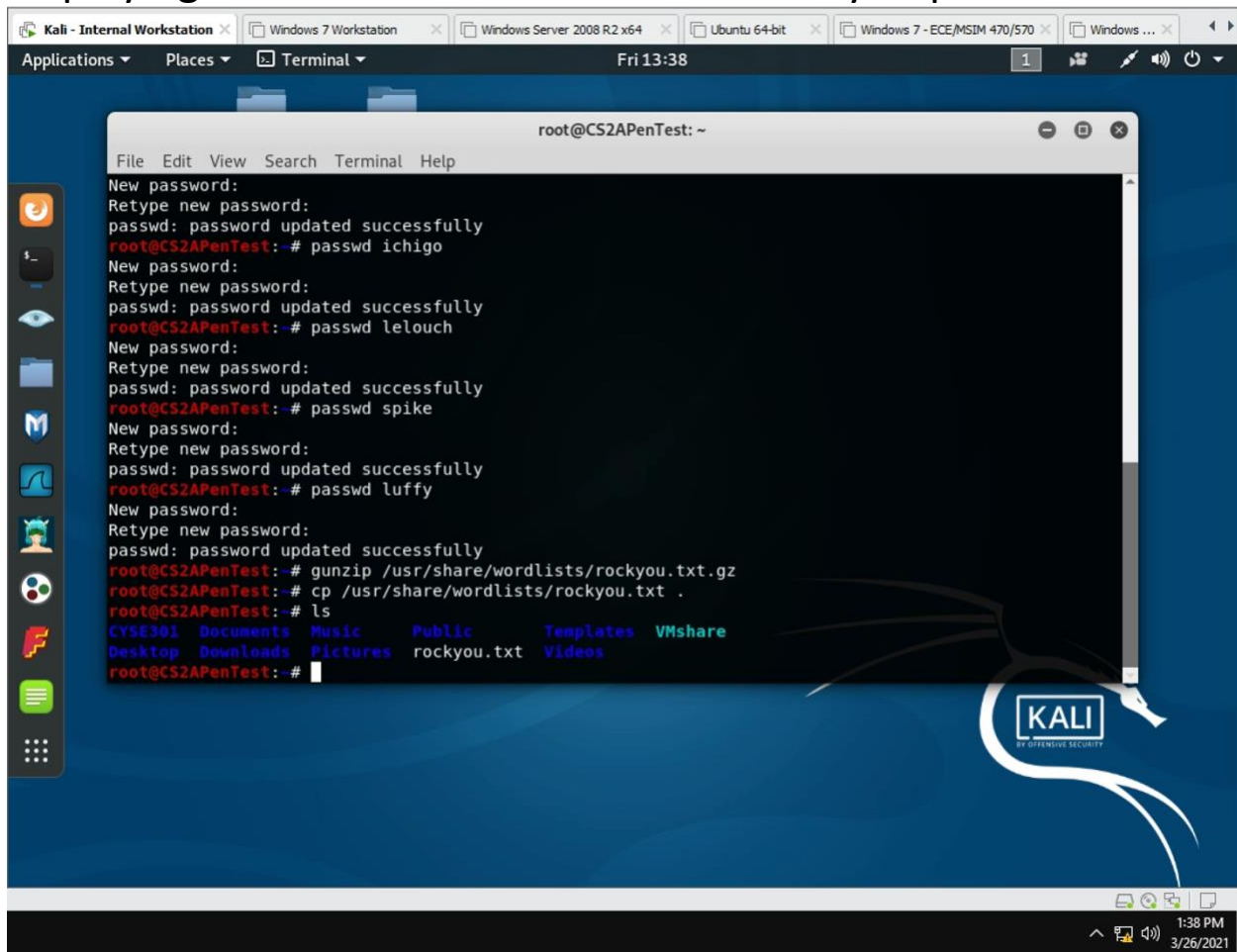
## Creating passwords for each user.



The screenshot shows a Kali Linux desktop environment with a terminal window open. The terminal is running as root on a machine named CS2APenTest. The user is creating passwords for seven different users: itadori, gojo, ichigo, lelouch, spike, and luffy. Each password is created successfully. The desktop background is the Kali Linux logo, and the system clock shows 1:24 PM on 3/26/2021.

```
root@CS2APenTest:~  
File Edit View Search Terminal Help  
root@CS2APenTest:~# passwd itadori  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd gojo  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd ichigo  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd lelouch  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd spike  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd luffy  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~#
```

Copying the dictionary list to the current directory and displaying contents from the home directory to prove it.

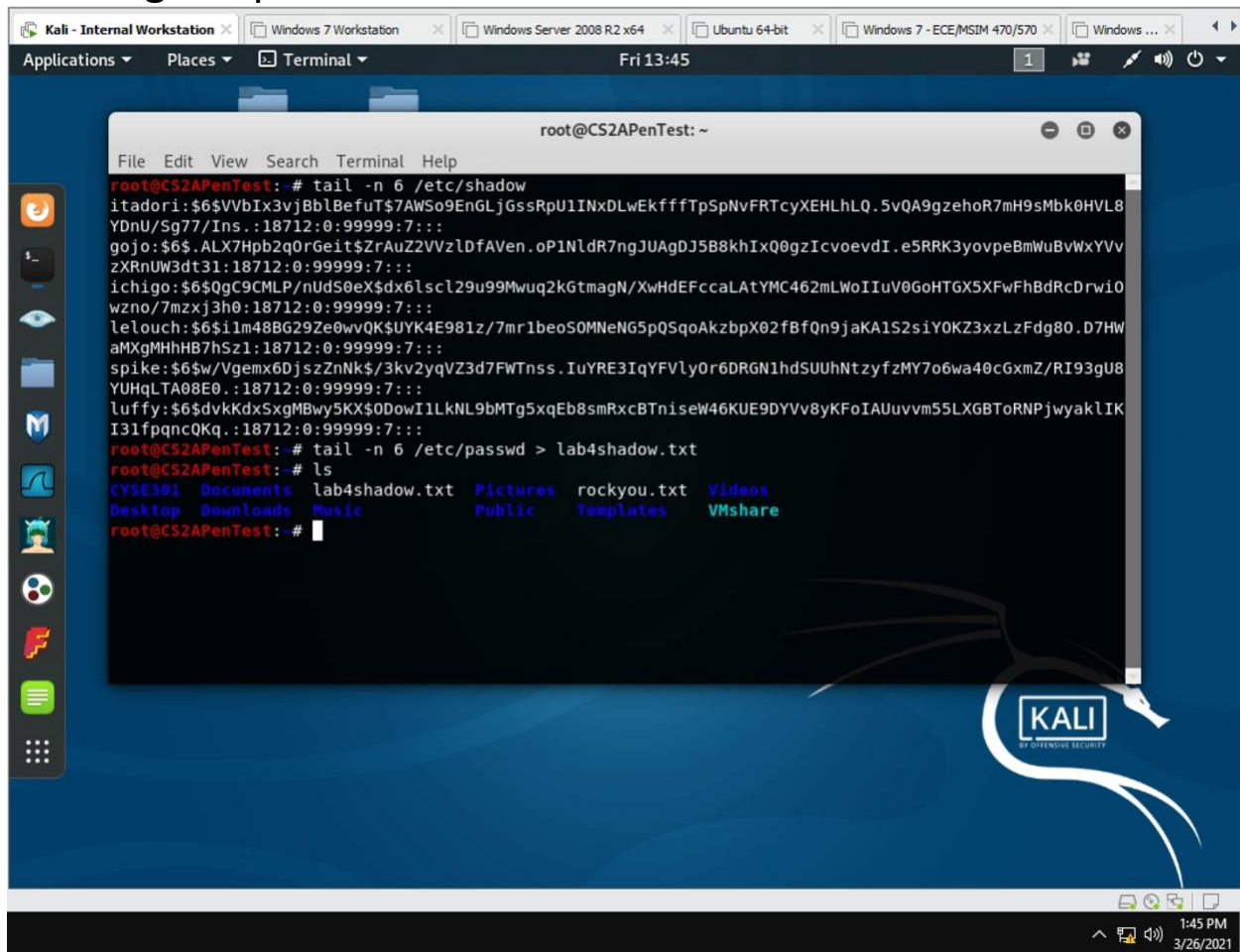


The screenshot shows a Kali Linux desktop environment. At the top, there is a taskbar with several open windows: 'Kali - Internal Workstation', 'Windows 7 Workstation', 'Windows Server 2008 R2 x64', 'Ubuntu 64-bit', 'Windows 7 - ECE/MSIM 470/570', and 'Windows ...'. Below the taskbar is a panel with 'Applications', 'Places', and 'Terminal' buttons. The main desktop area has a blue background with a Kali Linux logo in the bottom right corner. A terminal window is open, showing the following commands and output:

```
root@CS2APenTest: ~  
File Edit View Search Terminal Help  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd ichigo  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd lelouch  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd spike  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# passwd luffy  
New password:  
Retype new password:  
passwd: password updated successfully  
root@CS2APenTest:~# gunzip /usr/share/wordlists/rockyou.txt.gz  
root@CS2APenTest:~# cp /usr/share/wordlists/rockyou.txt .  
root@CS2APenTest:~# ls  
CYSE301 Documents Music Public Templates VMshare  
Desktop Downloads Pictures rockyou.txt Videos  
root@CS2APenTest:~#
```

The terminal window title is 'root@CS2APenTest: ~'. The desktop environment includes a sidebar with application icons and a system tray at the bottom right showing the time as 1:38 PM on 3/26/2021.

Exporting the shadow file to use it for further use when cracking the passwords.

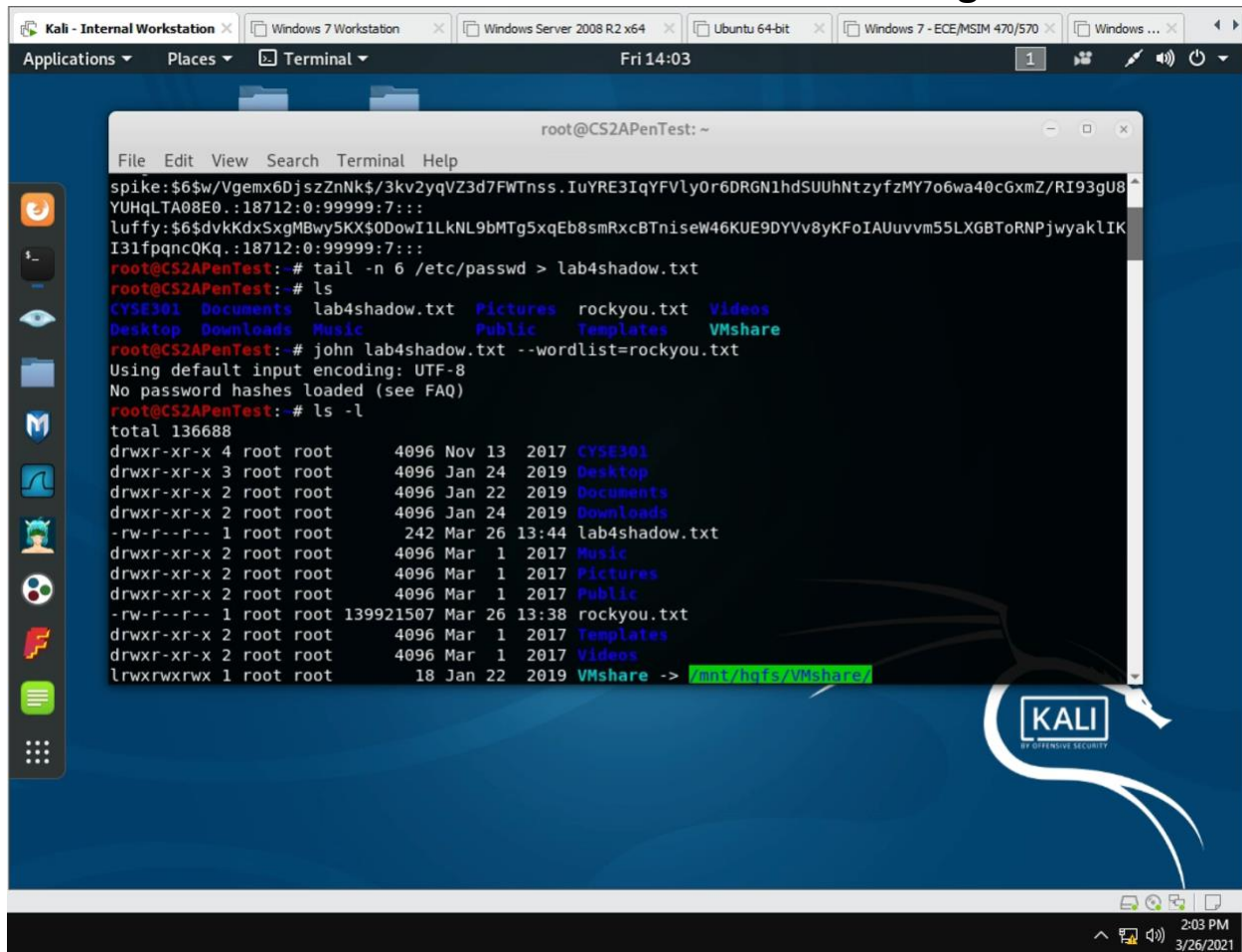


The screenshot shows a Kali Linux desktop environment. The top panel displays several open windows: 'Kali - Internal Workstation', 'Windows 7 Workstation', 'Windows Server 2008 R2 x64', 'Ubuntu 64-bit', 'Windows 7 - ECE/MSIM 470/570', and 'Windows ...'. The main desktop area features a blue background with a Kali Linux logo in the bottom right corner. A terminal window is open, showing the following commands and output:

```
root@CS2APenTest: ~  
File Edit View Search Terminal Help  
root@CS2APenTest:~# tail -n 6 /etc/shadow  
itadori:$6$VVbIx3vjBblBefuT$7AWSo9EnGLjGssRpU1INxDLwEkffffTpSpNvFRTcyXEHLhLQ.5vQA9gzehor7mH9sMbK0HVL8  
YDnU/Sg77/Ins.:18712:0:99999:7:::  
gojo:$6$.ALX7Hpb2qOrGeit$ZrAuZ2VVzldfAven.oP1NldR7ngJUAgDJ5B8kIxQ0gzIcvoevdI.e5RRK3yovpeBmWuBvWxYVv  
zXRnUW3dt31:18712:0:99999:7:::  
ichigo:$6$QgC9CMLP/nUdS0eX$dx6lsc129u99Mwuq2kGtmagN/XwHdEFccaLATyMC462mLWoIIuV0GoHTGX5XFwFhBdRcDrwi0  
wzno/7mzxj3h0:18712:0:99999:7:::  
lelouch:$6$i1m48BG29Ze0wvQK$UYK4E981z/7mr1beoSOMNeNG5pQsQoAkzbpX02fBfQn9jaKA1S2s1YOKZ3xzLzFdg80.D7HW  
aMXgMHHB7hS21:18712:0:99999:7:::  
spike:$6$w/Vgemx6DjszZnNk$/3kv2yqVZ3d7FWTnss.IuYRE3IqYFVly0r6DRGN1hdSUUhNtzyfzMY7o6wa40cGxmZ/RI93gU8  
YUHQlTA08E0.:18712:0:99999:7:::  
luffy:$6$dvkKdxSxgMBwy5KX$0DowI1LkNL9bMTg5xqEb8smRxcBTniseW46KUE9DYVv8yKFoIAUuvvm55LXGBToRNPjwyakLIK  
I31fpqncQKq.:18712:0:99999:7:::  
root@CS2APenTest:~# tail -n 6 /etc/passwd > lab4shadow.txt  
root@CS2APenTest:~# ls  
CYS8301 Documents lab4shadow.txt Pictures rockyou.txt Videos  
Desktop Downloads Music Public Templates VMshare  
root@CS2APenTest:~#
```

The terminal window title is 'root@CS2APenTest: ~'. The desktop background features a Kali Linux logo with the text 'KALI' and 'BY OFFENSIVE SECURITY'.

Here I had trouble executing the john the ripper command so I had to troubleshoot and find out what I did wrong.



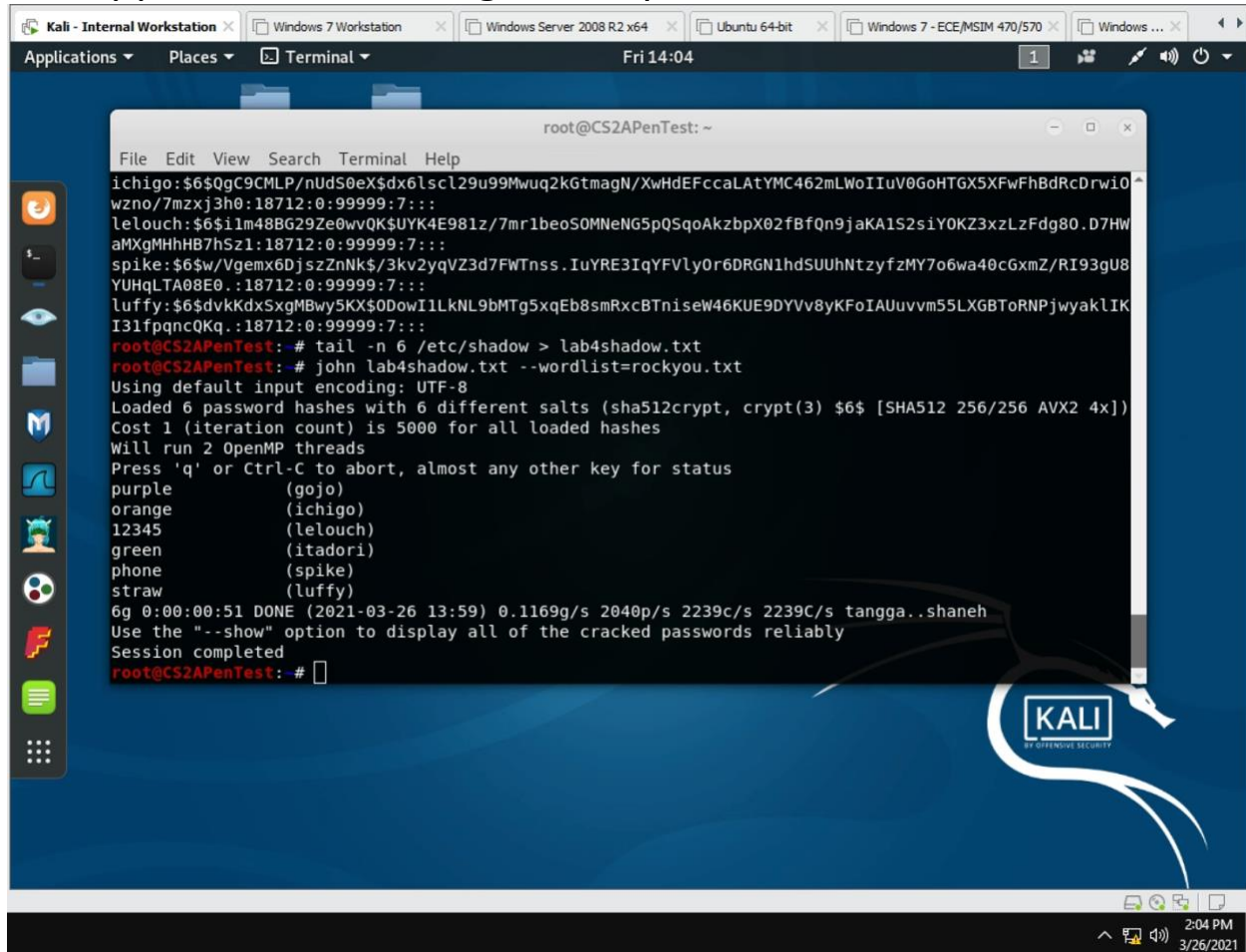
The screenshot shows a Kali Linux desktop environment with a terminal window open. The terminal displays the following commands and output:

```
root@CS2APenTest: ~  
File Edit View Search Terminal Help  
spike:$6$w/Vgemx6DjszZnNk$/3kv2yqVZ3d7FWTnss.IuYRE3IqYFVly0r6DRGN1hdSUUhNtzyfzMY7o6wa40cGxmZ/RI93gU8  
YUHQlTA08E0.:18712:0:99999:7:::  
luffy:$6$dvkKdxSxgMBwy5KX$0DowI1LkNL9bMTg5xqEb8smRxcBTniseW46KUE9DYVv8yKFoIAUuvvm55LXGBToRNPjwyakLIK  
I31fpqncQKq.:18712:0:99999:7:::  
root@CS2APenTest:~# tail -n 6 /etc/passwd > lab4shadow.txt  
root@CS2APenTest:~# ls  
CYSE301 Documents lab4shadow.txt Pictures rockyou.txt Videos  
Desktop Downloads Music Public Templates VMshare  
root@CS2APenTest:~# john lab4shadow.txt --wordlist=rockyou.txt  
Using default input encoding: UTF-8  
No password hashes loaded (see FAQ)  
root@CS2APenTest:~# ls -l  
total 136688  
drwxr-xr-x 4 root root 4096 Nov 13 2017 CYSE301  
drwxr-xr-x 3 root root 4096 Jan 24 2019 Desktop  
drwxr-xr-x 2 root root 4096 Jan 22 2019 Documents  
drwxr-xr-x 2 root root 4096 Jan 24 2019 Downloads  
-rw-r--r-- 1 root root 242 Mar 26 13:44 lab4shadow.txt  
drwxr-xr-x 2 root root 4096 Mar 1 2017 Music  
drwxr-xr-x 2 root root 4096 Mar 1 2017 Pictures  
drwxr-xr-x 2 root root 4096 Mar 1 2017 Public  
-rw-r--r-- 1 root root 139921507 Mar 26 13:38 rockyou.txt  
drwxr-xr-x 2 root root 4096 Mar 1 2017 Templates  
drwxr-xr-x 2 root root 4096 Mar 1 2017 Videos  
lrwxrwxrwx 1 root root 18 Jan 22 2019 VMshare -> /mnt/hqifs/VMshare/
```

The terminal window is titled "root@CS2APenTest: ~". The desktop background is blue with a Kali Linux logo and the text "KALI by OFFENSIVE SECURITY". The system clock in the bottom right corner shows "2:03 PM 3/26/2021".



I found out that I forgot to transfer the contents of the /etc/shadow file that contained the hashes into the lab4shadow.txt file so when I transferred those contents, john the ripper worked and I got all 6 passwords.



```
root@CS2APenTest: ~  
File Edit View Search Terminal Help  
ichigo:$6$0gC9CMLP/nUdS0eX$dx6lsc129u99Mwuq2kGtmagN/XwHdEFccaLATyMC462mLWoIiuv0GoHTGX5XfWfBdRcDrwi0  
wzno/7mzxj3h0:18712:0:99999:7:::  
lelouch:$6$i1m48BG29Ze0wvQK$UYK4E981z/7mr1beoSOMNeNG5pQsQoAkzbpX02fBf0n9jaKA1S2s1YOKZ3xzLzFdg80.D7HW  
aMXgMHhHB7h5z1:18712:0:99999:7:::  
spike:$6$w/Vgemx6DjszZnNk$/3kv2yqVZ3d7FWTnss.IuYRE3IqYFVly0r6DRGN1hdSUUhNtzyfzMY7o6wa40cGxmZ/RI93gU8  
YUHqLTA08E0.:18712:0:99999:7:::  
luffy:$6$dvkKdxSxgMBwy5KX$0DowI1LkNL9bMTg5xqEb8smRxcBTniseW46KUE9DYVv8yKFoIAUuvvm55LXGBToRNPjwyakLIK  
I31fpqnc0Kq.:18712:0:99999:7:::  
root@CS2APenTest:~# tail -n 6 /etc/shadow > lab4shadow.txt  
root@CS2APenTest:~# john lab4shadow.txt --wordlist=rockyou.txt  
Using default input encoding: UTF-8  
Loaded 6 password hashes with 6 different salts (sha512crypt, crypt(3) $6$ [SHA512 256/256 AVX2 4x])  
Cost 1 (iteration count) is 5000 for all loaded hashes  
Will run 2 OpenMP threads  
Press 'q' or Ctrl-C to abort, almost any other key for status  
purple          (gojo)  
orange          (ichigo)  
12345          (lelouch)  
green          (itadori)  
phone          (spike)  
straw          (luffy)  
6g 0:00:00:51 DONE (2021-03-26 13:59) 0.1169g/s 2040p/s 2239c/s 2239c/s tangga..shaneh  
Use the "--show" option to display all of the cracked passwords reliably  
Session completed  
root@CS2APenTest:~#
```