



Network Operating System – CT5052

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Student Name: Dipen Khatri

London Met ID: 23056968

College ID: NP04CP4A230244

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Submitted To: Mr. Prashant Adhikari

I confirm that I understand my coursework needs to be submitted online via my secondary teacher under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.

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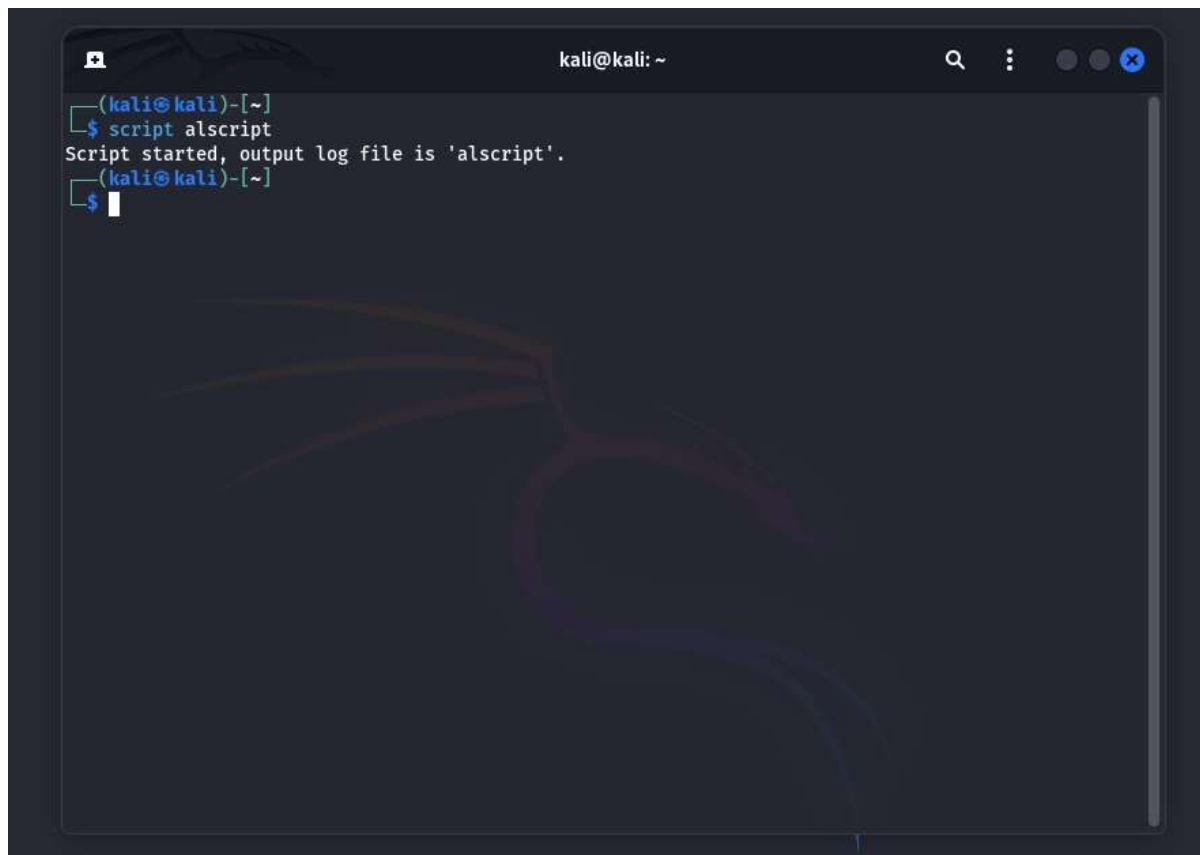
Introduction

An open-source operating system called Linux is used to manage and control machines. Its foundation is the Unix operating system, which is renowned for its security, reliability, and adaptability.

Key Features of Linux

1. Open Source: The source code is freely available which allows everyone to view, modify, and share it.
2. Customizability: Linux can be modified by users to meet specific requirements for embedded devices such as cellphones, servers, and personal PCs.
3. Security: When compared to other operating systems, Linux is incredibly secure.
4. Multi-user and multitasking: It effectively manages several processes and may be utilized by numerous users working on a Linux system at once.
5. Distributions: Ubuntu, Fedora, Debian, and CentOS are just a few of the Linux distributions available.

Step 1: Script started, file is a1script

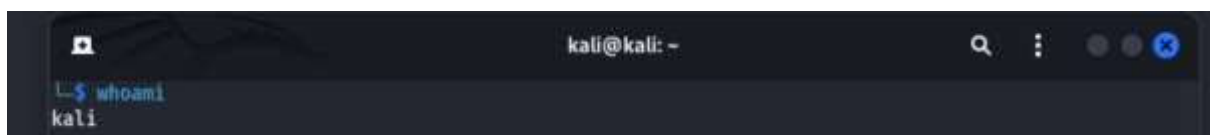
A terminal window titled 'kali@kali: ~' with search, menu, and window control icons in the title bar. The terminal shows a prompt '(kali@kali)-[~]' followed by the command '\$ script alscript'. The output is 'Script started, output log file is 'alscript''. Another prompt '(kali@kali)-[~]' is shown with a dollar sign '\$' and a cursor on the next line.

```
(kali@kali)-[~]  
$ script alscript  
Script started, output log file is 'alscript'.  
(kali@kali)-[~]  
$
```

Step

Figure 1 Inserting a1 script

Step 2: Type whoami to see the username.

A terminal window titled 'kali@kali: ~' with search, menu, and window control icons in the title bar. The terminal shows a prompt 'L-\$ whoami' followed by the output 'kali'.

```
L-$ whoami  
kali
```

Figure 2 Typing whoami to see what exists

Step 3: Type who to see a list of everyone on the system.

```
(kali@kali)-[~]
$ wgho
Command 'wgho' not found, did you mean:
  command 'who' from deb coreutils
Try: sudo apt install <deb name>

(kali@kali)-[~]
$ who
kali    seat0      2024-12-12 22:47 (login screen)
kali    :1         2024-12-12 22:47 (:1)
```

Figure 3 Typing who to see everyone

Step 4: Type `finger linuxnnn`, (where `linuxnnn` is your username) to see more information about your account.

```
(kali@kali)-[~]
$ finger kali
finger: /dev//seat0: No such file or directory
Login: kali                      Name: Kali
Directory: /home/kali           Shell: /usr/bin/zsh
On since Thu Dec 12 22:47 (EST) on seat0 from login screen
On since Thu Dec 12 22:47 (EST) on :1 from :1 (messages off)
No mail.
No Plan.
```

Figure 4 Typing `fingerkali`

Step 5: Type `date`, to see today's date and the current time.

```
(kali@kali)-[~]
$ date
Thu Dec 12 22:54:37 EST 2024

(kali@kali)-[~]
$
```

Figure 5 Typing `date`

Step 6: Which files are yours? Enter these three commands. Each one generates a unique result.

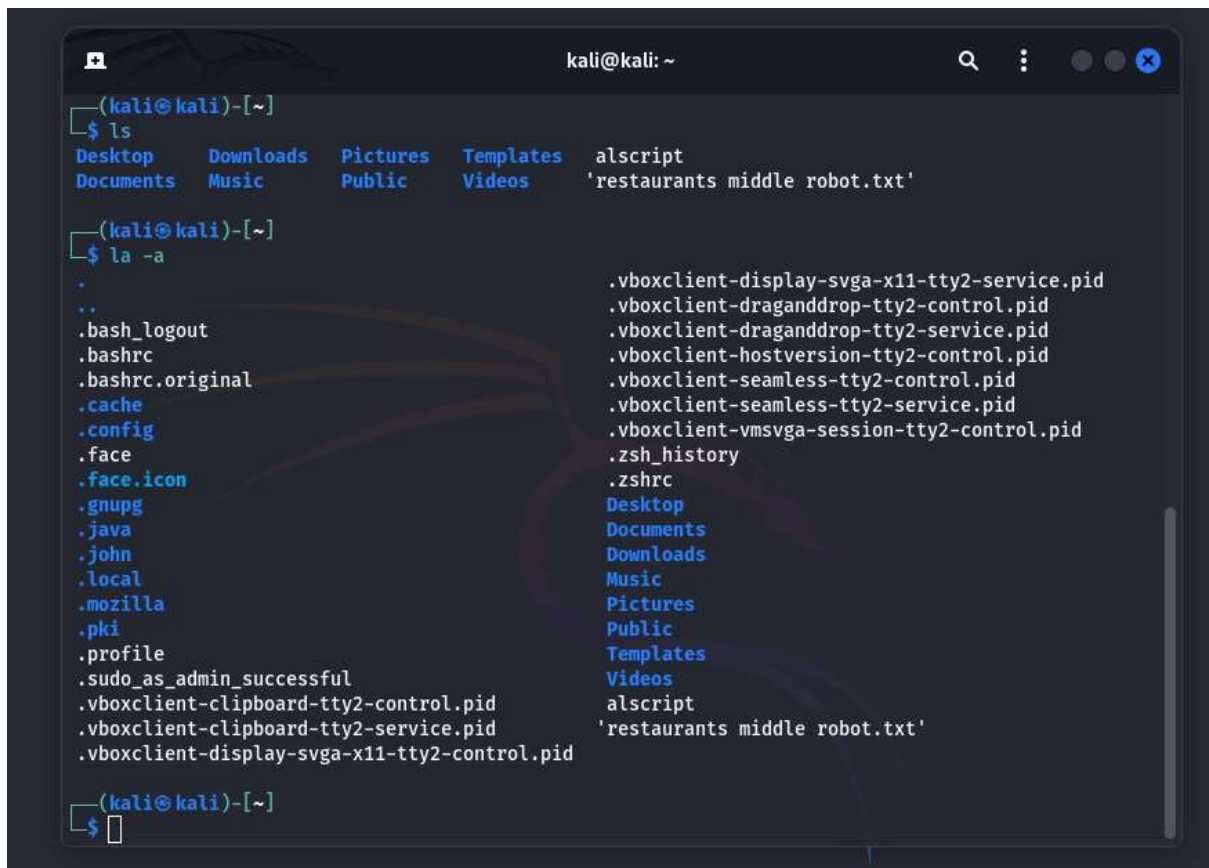
LS

What makes a difference?

```
(kali@kali)-[~]
$ ls
Desktop    Downloads  Pictures   Templates  alscript
Documents  Music      Public    Videos    'restaurants middle robot.txt'
```

Figure 6 Typing `ls`

ls -a

A terminal window titled 'kali@kali: ~' with a search icon, three dots, and window control buttons in the title bar. The prompt is '(kali@kali)-[~]'. The first command is '\$ ls', which outputs a list of directories and files: Desktop, Downloads, Pictures, Templates, alscrypt, Documents, Music, Public, Videos, and 'restaurants middle robot.txt'. The second command is '\$ la -a', which outputs a long list of files and directories, including hidden files like .bash_logout, .bashrc, .cache, .config, .face, .face.icon, .gnupg, .java, .john, .local, .mozilla, .pki, .profile, .sudo_as_admin_successful, and various .vboxclient files, as well as Desktop, Documents, Downloads, Music, Pictures, Public, Templates, Videos, alscrypt, and 'restaurants middle robot.txt'. The prompt returns to '(kali@kali)-[~]' and the cursor is on a new line after '\$ '.

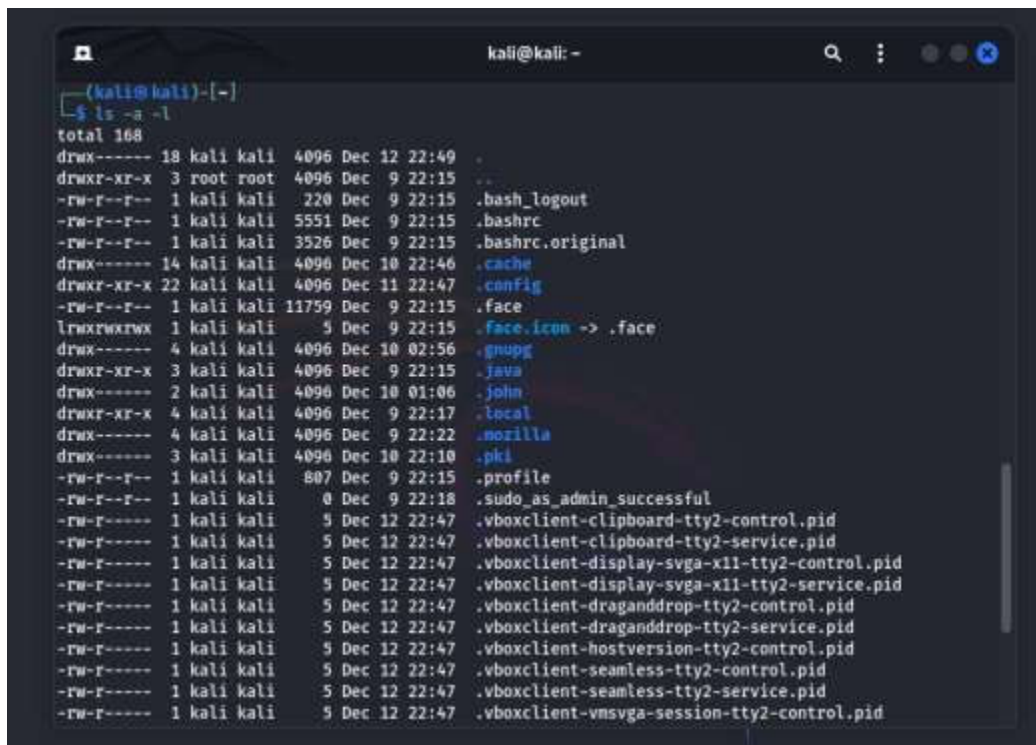
```
(kali@kali)-[~]
$ ls
Desktop  Downloads  Pictures  Templates  alscrypt
Documents Music      Public    Videos    'restaurants middle robot.txt'

(kali@kali)-[~]
$ la -a
.
..
.bash_logout
.bashrc
.bashrc.original
.cache
.config
.face
.face.icon
.gnupg
.java
.john
.local
.mozilla
.pki
.profile
.sudo_as_admin_successful
.vboxclient-clipboard-tty2-control.pid
.vboxclient-clipboard-tty2-service.pid
.vboxclient-display-svgx-x11-tty2-control.pid
.vboxclient-display-svgx-x11-tty2-service.pid
.vboxclient-draganddrop-tty2-control.pid
.vboxclient-draganddrop-tty2-service.pid
.vboxclient-hostversion-tty2-control.pid
.vboxclient-seamless-tty2-control.pid
.vboxclient-seamless-tty2-service.pid
.vboxclient-vmvga-session-tty2-control.pid
.zsh_history
.zshrc
Desktop
Documents
Downloads
Music
Pictures
Public
Templates
Videos
alscrypt
'restaurants middle robot.txt'

(kali@kali)-[~]
$
```

Figure 7 Typing ls-a

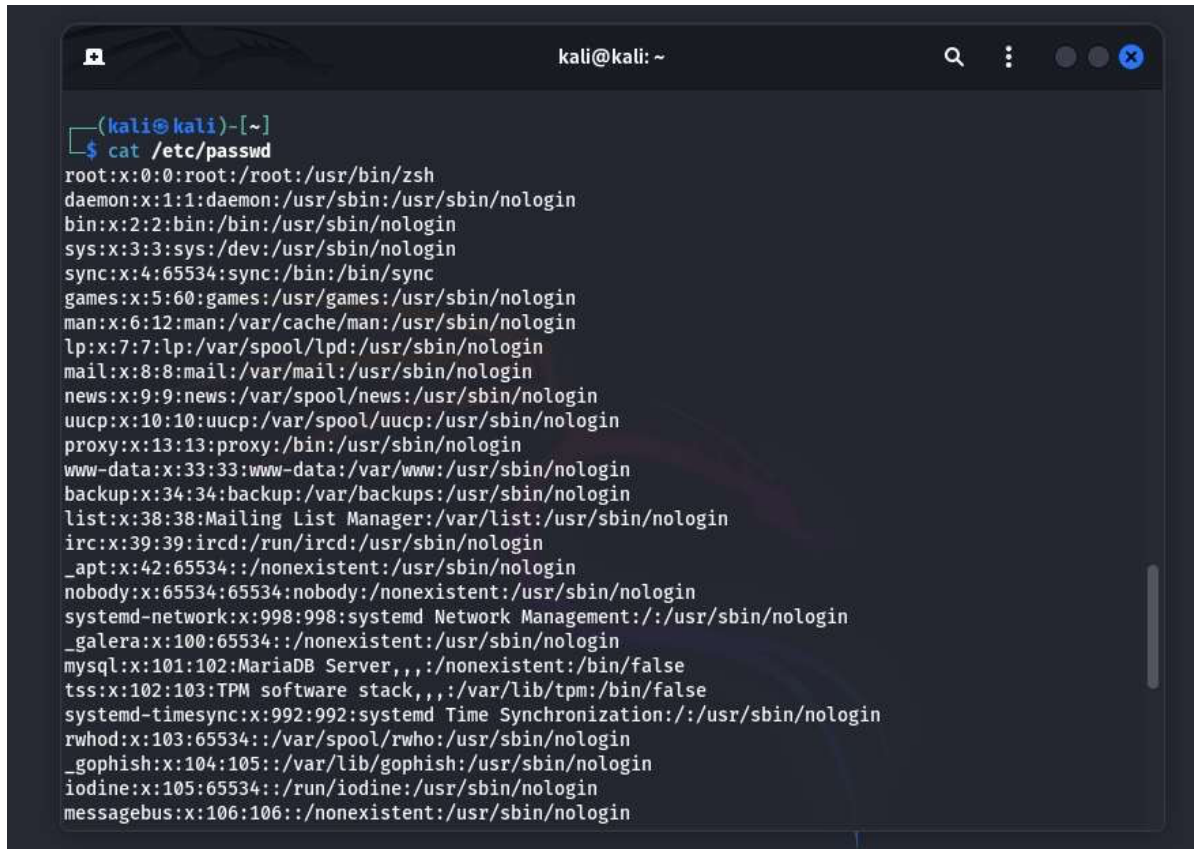
ls -a -l



```
(kali@kali)-[~]
$ ls -a -l
total 168
drwx----- 18 kali kali 4096 Dec 12 22:49 .
drwxr-xr-x  3 root root 4096 Dec  9 22:15 ..
-rw-r--r--  1 kali kali  220 Dec  9 22:15 .bash_logout
-rw-r--r--  1 kali kali 5551 Dec  9 22:15 .bashrc
-rw-r--r--  1 kali kali 3526 Dec  9 22:15 .bashrc.original
drwx----- 14 kali kali 4096 Dec 10 22:46 .cache
drwxr-xr-x 22 kali kali 4096 Dec 11 22:47 .config
-rw-r--r--  1 kali kali 11759 Dec  9 22:15 .face
lrwxrwxrwx  1 kali kali   5 Dec  9 22:15 .face.icon -> .face
drwx-----  4 kali kali 4096 Dec 10 02:56 .gnupg
drwxr-xr-x  3 kali kali 4096 Dec  9 22:15 .java
drwx-----  2 kali kali 4096 Dec 10 01:06 .john
drwxr-xr-x  4 kali kali 4096 Dec  9 22:17 .local
drwx-----  4 kali kali 4096 Dec  9 22:22 .mozilla
drwx-----  3 kali kali 4096 Dec 10 22:10 .pki
-rw-r--r--  1 kali kali  807 Dec  9 22:15 .profile
-rw-r--r--  1 kali kali   0 Dec  9 22:18 .sudo_as_admin_successful
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-clipboard-tty2-control.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-clipboard-tty2-service.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-display-svgx-x11-tty2-control.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-display-svgx-x11-tty2-service.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-draganddrop-tty2-control.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-draganddrop-tty2-service.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-hostversion-tty2-control.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-seamless-tty2-control.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-seamless-tty2-service.pid
-rw-r--r--  1 kali kali   5 Dec 12 22:47 .vboxclient-vmsvga-session-tty2-control.pid
```

Figure 8 Typing ls-q-l

Step 7: What's in a file? Type below commands. cat /etc/passwd



```
(kali@kali)-[~]
$ cat /etc/passwd
root:x:0:0:root:/root:/usr/bin/zsh
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin
_galera:x:100:65534::/nonexistent:/usr/sbin/nologin
mysql:x:101:102:MariaDB Server,,,:/nonexistent:/bin/false
tss:x:102:103:TPM software stack,,,:/var/lib/tpm:/bin/false
systemd-timesync:x:992:992:systemd Time Synchronization:/:/usr/sbin/nologin
rwhod:x:103:65534:/:/var/spool/rwho:/usr/sbin/nologin
_gophish:x:104:105:/:/var/lib/gophish:/usr/sbin/nologin
iodine:x:105:65534:/:/run/iodine:/usr/sbin/nologin
messagebus:x:106:106:/:/nonexistent:/usr/sbin/nologin
```

Figure 9 Typing cat /etc/passwd

Step 8: Type the following to create a file called test1:

echo > test1 "This is a one-line file"

```
statd:x:123:65534::/var/lib/nfs:/usr/sbin/nologin
saned:x:124:127::/var/lib/saned:/usr/sbin/nologin
polkitd:x:987:987:User for polkitd:/usr/sbin/nologin
rtkit:x:125:128:RealtimeKit,,,:/proc:/usr/sbin/nologin
colord:x:126:129:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
Debian-gdm:x:127:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
kali:x:1000:1000:Kali,,,:/home/kali:/usr/bin/zsh

(kali@kali)-[~]
$ echo "This is one line file" > test1

(kali@kali)-[~]
$
```

Figure 10 Creating a file name test1

Step 9: Type the following to create a new file, where CTRL-D is represented by ^D.

cat > test2.

The second file is this one.

There are multiple lines in it.

In actuality, three lines. ^D

```
colord:x:126:129:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
Debian-gdm:x:127:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
kali:x:1000:1000:Kali,,,:/home/kali:/usr/bin/zsh

(kali@kali)-[~]
$ echo "This is one line file" > test1

(kali@kali)-[~]
$ cat > test2
This is file two.
It has several lines.
Three lines, in fact

(kali@kali)-[~]
$ cat test2
This is file two.
It has several lines.
Three lines, in fact

(kali@kali)-[~]
$ cat test1
This is one line file

(kali@kali)-[~]
$
```

Figure 11 Creating cat>test2

Step 10: Show that the file exists, and what it contains.

```
(kali@kali)~[~]
$ cat test1 test2 > combined_file.txt

(kali@kali)~[~]
$ cat combined_file
cat: combined_file: No such file or directory

(kali@kali)~[~]
$ cat combined_file.txt
This is one line file
This is file two.
It has several lines.
Three lines, in fact

(kali@kali)~[~]
$
```

Figure 12 Showing that file exists

Step 11: Combine test1 and test2 file.

```
(kali@kali)~[~]
$ cat test1 test2 > combined_file.txt
```

Figure 13 Combining test1 and test2