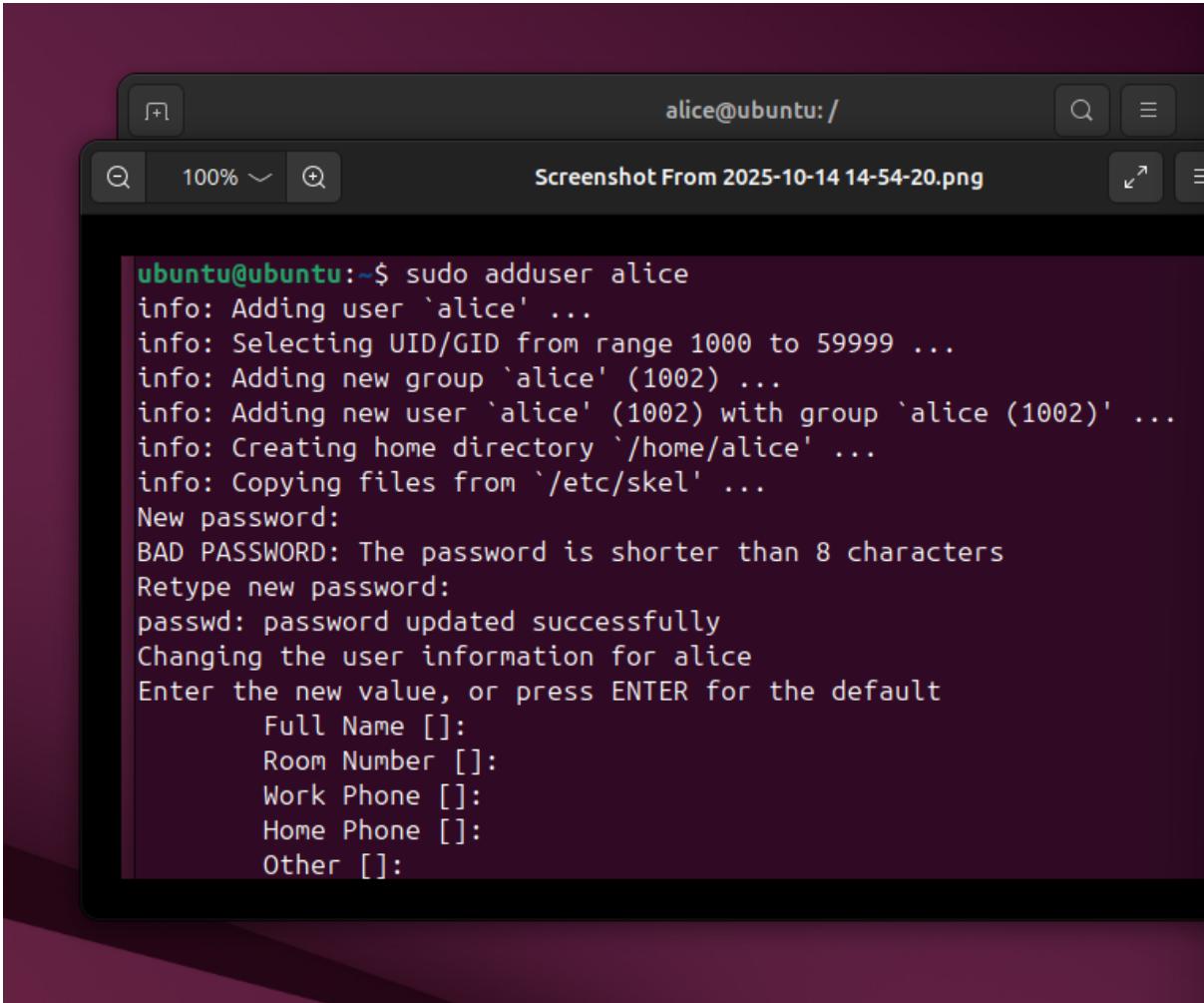


Task 1

1-alice (interactive creation with full prompts)



The screenshot shows a terminal window titled "Screenshot From 2025-10-14 14-54-20.png". The terminal is running on an Ubuntu system, as indicated by the prompt "ubuntu@ubuntu:~\$". The user is executing the command "sudo adduser alice". The process involves several informational messages from the "info" log level, such as "info: Adding user 'alice' ...", "info: Selecting UID/GID from range 1000 to 59999 ...", and "info: Adding new group 'alice' (1002) ...". It also shows the user being prompted for a password ("New password:"), which is rejected ("BAD PASSWORD: The password is shorter than 8 characters"), and then re-entering it ("Retype new password:"). The password is successfully updated ("passwd: password updated successfully"). Finally, the user information for "alice" is changed, prompting for details like "Full Name []:", "Room Number []:", "Work Phone []:", "Home Phone []:", and "Other []:". The terminal window has a dark background and light-colored text.

```
ubuntu@ubuntu:~$ sudo adduser alice
info: Adding user 'alice' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'alice' (1002) ...
info: Adding new user 'alice' (1002) with group 'alice (1002)' ...
info: Creating home directory '/home/alice' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for alice
Enter the new value, or press ENTER for the default
  Full Name []:
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
```

2-bob (with custom home directory /opt/users/bob
)

The screenshot shows a terminal window titled "alice@ubuntu:/". The window displays the usage information for the `useradd` command, followed by an example command.

```
-o, --non-unique          allow to create users with duplicate  
                          (non-unique) UID  
-p, --password PASSWORD  encrypted password of the new account  
-r, --system              create a system account  
-R, --root CHROOT_DIR    directory to chroot into  
-P, --prefix PREFIX_DIR  prefix directory where are located the /etc/* f  
iles  
-s, --shell SHELL         login shell of the new account  
-u, --uid UID             user ID of the new account  
-U, --user-group          create a group with the same name as the user  
-Z, --selinux-user SEUSER use a specific SEUSER for the SELinux user m  
apping  
--selinux-range SERANGE   use a specific MLS range for the SELinux user m  
apping  
--extrausers               Use the extra users database  
  
ubuntu@ubuntu:/home$ sudo useradd -d /opt/users/bob bob
```

3-charlie (system user for services)

The screenshot shows a Linux desktop environment with a terminal window open. The terminal window title is "alice@ubuntu: /". The terminal displays the following commands and output:

```
ubuntu@ubuntu:~$ sudo useradd -r charlie
ubuntu@ubuntu:~$ cat /etc/passwd

root:x:0:0:root:/bin/bash
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:/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
      Home Phone []:
      Other []:
```

```
installer:x:1001:1001:Ubuntu:/home/installer:/usr/bin/subiquity-shell
alice:x:1002:1002::,/home/alice:/bin/bash
bob:x:1003:1003::/opt/users/bob:/bin/sh
charlie:x:997:983::/home/charlie:/bin/sh
```

set password for alice and bob

```
alice@ubuntu:/$ su ubuntu  
  
ubuntu@ubuntu:/$  
ubuntu@ubuntu:/$ sudo passwd alice  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:  
passwd: password updated successfully  
ubuntu@ubuntu:/$ sudo passwd bob  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:  
passwd: password updated successfully  
ubuntu@ubuntu:/$
```

Home Phone []:
Other []:



Force alice to change password at next login

```
ubuntu@ubuntu:~$ sudo passwd -e alice  
passwd: password changed.  
ubuntu@ubuntu:~$ sudo su alice  
You are required to change your password immediately (administrator enforced).  
Changing password for alice.  
Current password:  
New password:  
Retype new password:  
Sorry, passwords do not match.  
New password:  
Retype new password:  
alice@ubuntu:/home/ubuntu$
```

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Display alice's entry from /etc/passwd

```
Retype new password:  
alice@ubuntu:/home/ubuntu$ cat /etc/passwd |grep "alice"  
alice:x:1002:1002:,,,:/home/alice:/bin/bash  
alice@ubuntu:/home/ubuntu$
```

Show bob's password aging information using chage -l bob

```
alice:x:1002:1002:,,,:/home/alice:/bin/bash  
alice@ubuntu:/home/ubuntu$ exit  
exit  
ubuntu@ubuntu:~$ sudo chage -l bob  
Last password change : Oct 14, 2025  
Password expires : never  
Password inactive : never  
Account expires : never  
Minimum number of days between password change : 0  
Maximum number of days between password change : 99999  
Number of days of warning before password expires : 7  
ubuntu@ubuntu:~$
```

4. :

developers (regular group)

```
charlie:x:983:  
ubuntu@ubuntu:~$ sudo groupadd developpers  
ubuntu@ubuntu:~$ cat /etc/group  
root:x:0:  
daemon:x:1:  
bin:x:2:  
sys:x:3:  
adm:x:4:syslog,ubuntu,installer  
tty:x:5:  
disk:x:6:  
lp:x:7:  
mail:x:8:  
news:x:9:  
uucp:x:10:  
man:x:12:  
proxy:x:13:  
kmem:x:15:  
dialout:x:20:installer  
fax:x:21:  
voice:x:22:  
cdrom:x:24:ubuntu,installer
```

project-team (using addgroup command)

```
ubuntu@ubuntu:~$ sudo addgroup project-team  
info: Selecting GID from range 1000 to 59999 ...  
info: Adding group `project-team' (GID 1005) ...  
ubuntu@ubuntu:~$
```

```
installer:x:1001:  
alice:x:1002:  
bob:x:1003:  
charlie:x:983:  
developpers:x:1004:  
project-team:x:1005:  
ubuntu@ubuntu:~$
```

Add alice to both developers and project-team

```
exit
ubuntu@ubuntu:~$ sudo usermod -aG developpers alice
ubuntu@ubuntu:~$ sudo usermod -aG project-team alice
ubuntu@ubuntu:~$ cat /etc/group
root:x:0:
Desktop Documents Downloads Music Pictures Public snap Templates Videos
ubuntu@ubuntu:~$ groups alice
alice : alice users developpers project-team
ubuntu@ubuntu:~$
```

Add bob to developers only

```
alice : alice users developpers project-team
ubuntu@ubuntu:~$ sudo usermod -aG developpers bob
ubuntu@ubuntu:~$ groups bob
bob : bob developpers
ubuntu@ubuntu:~$
```

Make developers alice's primary group

```
ubuntu@ubuntu:~$ sudo usermod -g developpers alice
ubuntu@ubuntu:~$ cd /home
ubuntu@ubuntu:/home$ ll
total 0
drwxr-xr-x  1 root      root          100 Oct 14 13:43 .
drwxr-xr-x  1 root      root          260 Oct 14 13:38 ..
drwxr-x---  4 alice     developpers  160 Oct 14 15:08 alice/
drwxr-x---  3 installer  installer    120 Oct 14 13:38 installer/
drwxr-x--- 17 ubuntu    ubuntu        440 Oct 14 15:09 ubuntu/
ubuntu@ubuntu:/home$
```

Use groups command to show alice's groups

```
ubuntu@ubuntu:/home$ groups alice
alice : developpers users project-team
ubuntu@ubuntu:/home$
```

Use id command to display bob's UID and GID information

```
ubuntu@ubuntu:/home$ id alice
uid=1002(alice) gid=1004(developpers) groups=1004(developpers),100(users),1
project-team)
ubuntu@ubuntu:/home$ id bob
uid=1003(bob) gid=1003(bob) groups=1003(bob),1004(developpers)
ubuntu@ubuntu:/home$
```

=====

=====

=====

Part C: File Permissions and Ownership

Create directory /tmp/lab1_test

```
ubuntu@ubuntu:/tmp$ mkdir -p /tmp/lab1_test
ubuntu@ubuntu:/tmp$ cd /tmp
ubuntu@ubuntu:/tmp$ ls
lab1_test
```

Create file /tmp/lab1_test/data.txt with some content

```
ubuntu@ubuntu:/tmp$ cd lab1_test/
ubuntu@ubuntu:/tmp/lab1_test$ cat > data.txt
hello from data text
hello
hello

^C
ubuntu@ubuntu:/tmp/lab1_test$ cat data.txt
hello from data text
hello
hello

ubuntu@ubuntu:/tmp/lab1_test$
```

Create file /tmp/lab1_test/script.sh

```
netto
ubuntu@ubuntu:/tmp/lab1_test$ vi /tmp/lab1_test/scripts.sh
ubuntu@ubuntu:/tmp/lab1_test$ ll /tmp/lab1_test/scripts.sh
-rw-rw-r-- 1 ubuntu ubuntu 0 Oct 14 15:42 /tmp/lab1_test/scripts.sh
ubuntu@ubuntu:/tmp/lab1_test$ chmod +x scripts.sh
ubuntu@ubuntu:/tmp/lab1_test$ vi /tmp/lab1_test/scripts.sh
ubuntu@ubuntu:/tmp/lab1_test$ chmod +x scripts.sh
ubuntu@ubuntu:/tmp/lab1_test$ ll /tmp/lab1_test/scripts.sh
-rwxrwxr-x 1 ubuntu ubuntu 0 Oct 14 15:42 /tmp/lab1_test/scripts.sh*
ubuntu@ubuntu:/tmp/lab1_test$ nano /tmp/lab1_test/scripts.sh
ubuntu@ubuntu:/tmp/lab1_test$
```

Set data.txt permissions to rw-r--r--

Set script.sh permissions to rwxr-xr-x

```
chroot: cannot access 'data/test': No such file or directory
ubuntu@ubuntu:/tmp/lab1_test$ chmod 644 data.text
ubuntu@ubuntu:/tmp/lab1_test$ chmod 755 scripts.sh
ubuntu@ubuntu:/tmp/lab1_test$ ll
total 8
drwxrwxr-x 2 ubuntu ubuntu 80 Oct 14 15:44 ./
drwxrwxrwt 17 root root 380 Oct 14 15:37 ../
-rw-r--r-- 1 ubuntu ubuntu 34 Oct 14 15:39 data.text
-rwxr-xr-x 1 ubuntu ubuntu 26 Oct 14 15:44 scripts.sh*
ubuntu@ubuntu:/tmp/lab1_test$
```

Change owner of data.txt to alice and group to developers

Change owner of entire /tmp/lab1_test directory to bob and group to project-team

```
ubuntu@ubuntu:/tmp/lab1_test$ sudo chown alice:developpers data.txt
ubuntu@ubuntu:/tmp/lab1_test$ ll
total 4
drwxrwxr-x  2 ubuntu ubuntu      80 Oct 14 15:52 .
drwxrwxrwt 17 root   root     380 Oct 14 15:37 ../
-rw-rw-r--  1 alice  developpers  0 Oct 14 15:52 data.txt
-rwxr-xr-x  1 ubuntu ubuntu    26 Oct 14 15:44 scripts.sh*
```

```
ubuntu@ubuntu:/tmp/lab1_test$ sudo chown -R bob:project-team /tmp/lab1_test
ubuntu@ubuntu:/tmp/lab1_test$ cd ..
ubuntu@ubuntu:/tmp$ ll
total 8
drwxrwxrwt 17 root   root     380 Oct 14 15:37 .
drwxr-xr-x  1 root   root     260 Oct 14 13:38 ..
drwxrwxrwt  2 root   root      40 Oct 14 13:38 .font-unix/
drwxrwxrwt  2 root   root      60 Oct 14 13:38 .ICE-unix/
drwxrwxr-x  2 bob    project-team 80 Oct 14 15:52 lab1_test/
..
```

Part D: Verification and Testing

Switch to alice user (su - alice)

```
system: private API (socket:1007) received signal SIGSEGV: general protection fault - invalid memory reference
```

```
ubuntu@ubuntu:/tmp$ cd ./
ubuntu@ubuntu:/tmp$ su alice
Password:
alice@ubuntu:/tmp$
```

- Use `ls`
- Show g

Try to read data.txt

```
alice@ubuntu:/tmp$ cat > data.txt
hello
hello
hello
hello
^C
alice@ubuntu:/tmp$ cat data.txt
hello
hello
hello
hello
alice@ubuntu:/tmp$
```

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Try to execute script.sh

```
systemd-private-0f43a0dd218d4c5d9ee1e49d7e398236-upower.service-dezmc  
alice@ubuntu:/tmp$ cd lab1_test/  
alice@ubuntu:/tmp/lab1_test$ ls  
data.txt  scripts.sh  
alice@ubuntu:/tmp/lab1_test$ ./scripts.sh  
/tmp/lab1_test  
total 4  
drwxrwxr-x  2 bob  project-team  80 Oct 14 15:52 .  
drwxrwxrwt 17 root root        400 Oct 14 15:59 ..  
-rw-rw-r--  1 bob  project-team   0 Oct 14 15:52 data.txt  
-rwxr-xr-x  1 bob  project-team  26 Oct 14 15:44 scripts.sh  
hello  
alice@ubuntu:/tmp/lab1_test$
```

11.

Use ls -la /tmp/lab1_test to show all permissions and ownership

```
alice@ubuntu:/tmp/lab1_test$ ls -la /tmp/lab1_test/  
total 4  
drwxrwxr-x  2 bob  project-team  80 Oct 14 15:52 .  
drwxrwxrwt 17 root root        400 Oct 14 15:59 ..  
-rw-rw-r--  1 bob  project-team   0 Oct 14 15:52 data.txt  
-rwxr-xr-x  1 bob  project-team  26 Oct 14 15:44 scripts.sh  
alice@ubuntu:/tmp/lab1_test$
```

11.

Show group memberships for all created users

```
alice@ubuntu:/tmp/lab1_test$ cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,ubuntu,installer
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:installer
fax:x:21:
voice:x:22:
cdrom:x:24:ubuntu_installer
```

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11.

Document what works and what doesn't

```
alice@ubuntu:/tmp/lab1_test$ ls -la
total 4
drwxrwxr-x  2 bob  project-team  80 Oct 14 15:52 .
drwxrwxrwt 17 root root        400 Oct 14 15:59 ..
-rw-rw-r--  1 bob  project-team   0 Oct 14 15:52 data.txt
-rwxr-xr-x  1 bob  project-team  26 Oct 14 15:44 scripts.sh
alice@ubuntu:/tmp/lab1_test$
```

data.txt -> doesnot have excute so it doesn't work
we can read the file only

scripts.sh-> have excute so it can read it and run it