

Task_1: System Basics (Chapter 1 - Getting Started with RHEL)

- 1- Display the hostname of the system.

```
ibrahim@server:~  
[ibrahim@server ~]$ hostname  
server.com  
[ibrahim@server ~]$
```

- 2- Show the current kernel version

```
ibrahim@server:~  
[ibrahim@server ~]$ uname -r  
5.14.0-427.13.1.el9_4.x86_64  
[ibrahim@server ~]$
```

- 3- Verify if the SSH service is running

```
[ibrahim@server ~]$ systemctl status sshd  
● sshd.service - OpenSSH server daemon  
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: ena  
   Active: active (running) since Tue 2024-10-08 11:15:20 EEST; 5h 13min ago  
     Docs: man:sshd(8)  
           man:sshd_config(5)  
  Main PID: 825 (sshd)  
    Tasks: 1 (limit: 55007)  
  Memory: 2.6M  
     CPU: 343ms  
   CGroup: /system.slice/sshd.service  
           └─825 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"  
Lines 1-11/11 (END)
```

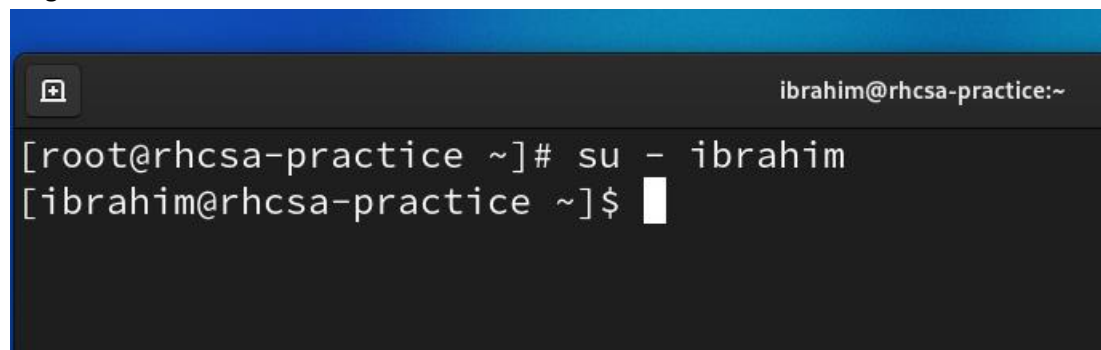
- 4- Set the system's hostname to rhcsa-practice.localdomain

```
ibrahim@server ~]$ sudo hostname rhcsa-practice.localdomain
sudo] password for ibrahim:
ibrahim@server ~]$ hostname
rhcsa-practice.localdomain
ibrahim@server ~]$
```

Task 2: Access the Command Line (Chapter 2 - Accessing the Command Line)

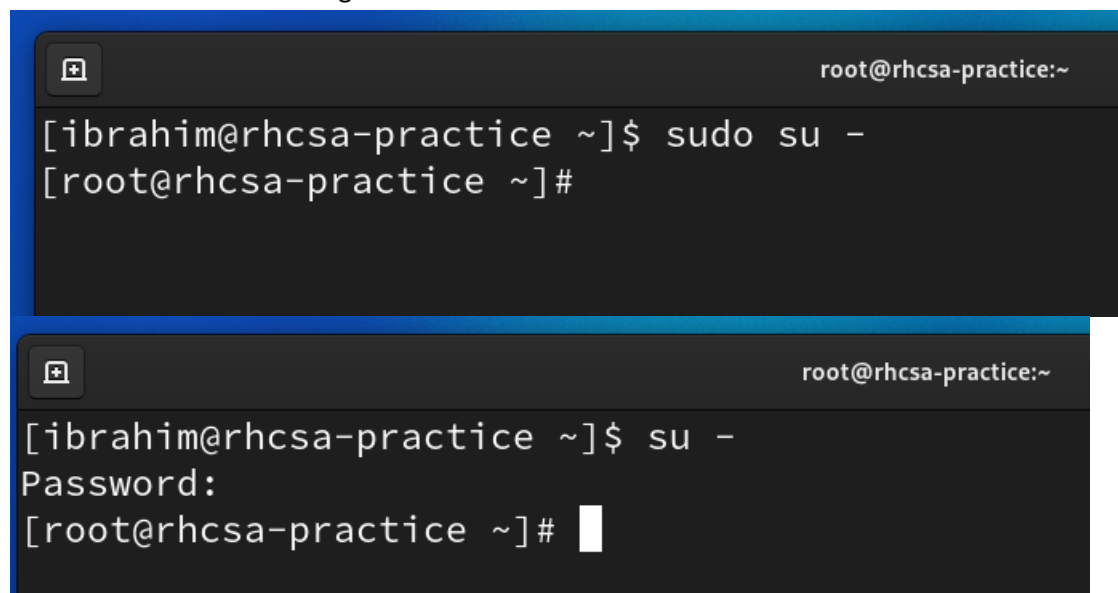
- 1- Login as Different Users:

- a- Login as Different Users:

A terminal window with a blue title bar. The title bar shows a window icon on the left and the text 'ibrahim@rhcsa-practice:~' on the right. The terminal content shows a root user prompt '[root@rhcsa-practice ~]#', followed by the command 'su - ibrahim', which results in an ibrahim user prompt '[ibrahim@rhcsa-practice ~]\$' with a cursor.

```
ibrahim@rhcsa-practice:~
[root@rhcsa-practice ~]# su - ibrahim
[ibrahim@rhcsa-practice ~]$
```

- b- Switch to the root user using the su command

Two terminal windows are shown. The top window has a blue title bar with 'root@rhcsa-practice:~' and shows the command 'sudo su -' being executed by ibrahim, resulting in a root prompt '[root@rhcsa-practice ~]#'. The bottom window also has a blue title bar with 'root@rhcsa-practice:~' and shows the command 'su -' being executed by ibrahim, followed by a 'Password:' prompt and then a root prompt '[root@rhcsa-practice ~]#'.

```
root@rhcsa-practice:~
[ibrahim@rhcsa-practice ~]$ sudo su -
[root@rhcsa-practice ~]#

root@rhcsa-practice:~
[ibrahim@rhcsa-practice ~]$ su -
Password:
[root@rhcsa-practice ~]#
```

- c- After gaining root access, displa

```
root@rhcsa-practice:~  
[root@rhcsa-practice ~]# cat /etc/shadow  
root:$6$SRCgz9/9UfjIs30$VJsGAqKb0QUtKaLPDMecWGS1XsR.kJTtbdVqN7oau0Q2HXaqeVh/AYl  
ZV7Ker9mdCfGrH27p6S.kMzuX6EOXJ0::0:99999:7:::  
bin:!:19760:0:99999:7:::  
daemon:!:19760:0:99999:7:::  
adm:!:19760:0:99999:7:::  
lp:!:19760:0:99999:7:::  
sync:!:19760:0:99999:7:::  
shutdown:!:19760:0:99999:7:::  
halt:!:19760:0:99999:7:::  
mail:!:19760:0:99999:7:::  
operator:!:19760:0:99999:7:::
```

2- Bash Shell Basics:

- a- Display all files, including hidden files, in your home directory.

```
ibrahim@rhcsa-practice:~  
[ibrahim@rhcsa-practice ~]$ pwd  
/home/ibrahim  
[ibrahim@rhcsa-practice ~]$ ls -a  
.  
..  
[  
.bash_history  
.bash_logout  
.bash_profile  
.bashrc  
.cache  
.config  
date.txt  
Desktop  
Documents  
Downloads  
err  
error  
errors.txt  
fike  
file  
file222  
filename1  
filename2  
filestest  
initial  
.lessht  
lin  
.local  
maunal  
mm  
.mozilla  
Music  
myteam  
oldpasswd  
output.txt  
passwd  
.passwd.swp  
Pictures  
ppasswd.ps  
Public  
redhat  
root  
shell  
slin  
sorted_g_users.txt  
.ssh  
.swp  
tea  
tea.txt  
Templates  
testtttt  
um  
un  
unowend.txt  
.uu  
Videos  
.viminfo  
words
```

- b- Create a directory called practice-files inside your home directory

```
ibrahim@rhcsa-practice ~]$ pwd
home/ibrahim
ibrahim@rhcsa-practice ~]$ mkdir practice-files
ibrahim@rhcsa-practice ~]$ ls -d practice-files
practice-files
ibrahim@rhcsa-practice ~]$
```

- c- Navigate to this directory and create a text file named testfile.txt with the content "RHCSA Exam Practice".

```
ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ touch testfile.txt
[ibrahim@rhcsa-practice practice-files]$ echo "RHCSA Practice Exam" > testfile.txt
[ibrahim@rhcsa-practice practice-files]$ cat testfile.txt
RHCSA Practice Exam
[ibrahim@rhcsa-practice practice-files]$
```

Task 3: Managing Files and Directories (Chapter 3 - Managing Files from the Command Line)

1- File Operations:

- a- Inside the practice-files directory, create two more files named file1.txt and file2.txt.

```
ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ touch file{1..2}.txt
[ibrahim@rhcsa-practice practice-files]$ ls
file1.txt  file2.txt  testfile.txt
[ibrahim@rhcsa-practice practice-files]$
```

- b- Copy file1.txt to /tmp and move file2.txt to /var/tmp.

```
ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ cp file1.txt /tmp; mv file2.txt /var/tmp/
[ibrahim@rhcsa-practice practice-files]$ ls
file1.txt  testfile.txt
[ibrahim@rhcsa-practice practice-files]$ ls -l /tmp/file1.txt
-rw-r--r--. 1 ibrahim ibrahim 0 Oct  8 17:05 /tmp/file1.txt
[ibrahim@rhcsa-practice practice-files]$ ls -l /var/tmp/file2.txt
-rw-r--r--. 1 ibrahim ibrahim 0 Oct  8 16:58 /var/tmp/file2.txt
[ibrahim@rhcsa-practice practice-files]$
```

- c- Create a symbolic link to testfile.txt called link-to-testfile in the same directory.

```
ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ ln -s testfile.txt link-to-testfile
[ibrahim@rhcsa-practice practice-files]$ ls -l
total 4
-rw-r--r--. 1 ibrahim ibrahim 0 Oct  8 16:58 file1.txt
lrwxrwxrwx. 1 ibrahim ibrahim 12 Oct  8 17:10 link-to-testfile -> testfile.txt
-rw-r--r--. 1 ibrahim ibrahim 20 Oct  8 16:54 testfile.txt
[ibrahim@rhcsa-practice practice-files]$
```

- d- Delete file1.txt from /tmp and restore it from /var/tmp.
Since file2.txt was moved to /var/tmp, we will assume you meant to restore file1.txt by copying it back from /var/tmp. To do this, first copy file1.txt back from /var/tmp to practice-file.

```
ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ cp /var/tmp/file2.txt file1.txt
[ibrahim@rhcsa-practice practice-files]$ ls
file1.txt  kernel-info.txt  link-to-testfile  testfile.txt
[ibrahim@rhcsa-practice practice-files]$
```

2- Search Files:

- a- Find all files in your home directory that were modified in the last 24 hours.

```
[ibrahim@rhcsa-practice practice-files]$ sudo find ~ -type f -mtime -1
/home/ibrahim/.local/share/gnome-shell/application_state
/home/ibrahim/.local/share/evolution/addressbook/system/contacts.db
/home/ibrahim/.local/share/nautilus/tags/meta.db-shm
/home/ibrahim/.local/state/wireplumber/restore-stream
/home/ibrahim/.local/state/wireplumber/default-routes
/home/ibrahim/.config/ibus/bus/4e4d7fb0baca4b94ae3430d7c2e759ba-unix-wayland-0
/home/ibrahim/.config/dconf/user
/home/ibrahim/.config/gtk-3.0/bookmarks
/home/ibrahim/.config/monitors.xml
/home/ibrahim/.config/monitors.xml~
/home/ibrahim/.cache/mesa_shader_cache/index
/home/ibrahim/.cache/mesa_shader_cache/a0/1934d7e54f7b9a0b790b4f78bf4ebba26c1077
/home/ibrahim/.cache/mesa_shader_cache/21/56d3ddd6d4b3110e50b9aeb0b6b73293b4f1d7
/home/ibrahim/.cache/mesa_shader_cache/9c/75fe3432b15bf084fd3638988da780bfbf7c93
/home/ibrahim/.cache/mesa_shader_cache/a1/8c23c5a90bef2969f74029e754f11a8ab1b706
/home/ibrahim/.cache/mesa_shader_cache/bb/0b685a5072b9447b59f12d0447ceb44e8745e8
/home/ibrahim/.cache/mesa_shader_cache/0a/360e44351f1a4f919b71b050c8cd6f2335f89a
/home/ibrahim/.cache/mesa_shader_cache/97/66271d582a501b0c992780ad477d8d10110932
/home/ibrahim/.cache/mesa_shader_cache/50/ed7171aaa572b151fe7bae28edfb76d4e15cd1
/home/ibrahim/.bash_history
```

- b- Search for the string "bash" in /etc/passwd and display the matching lines.

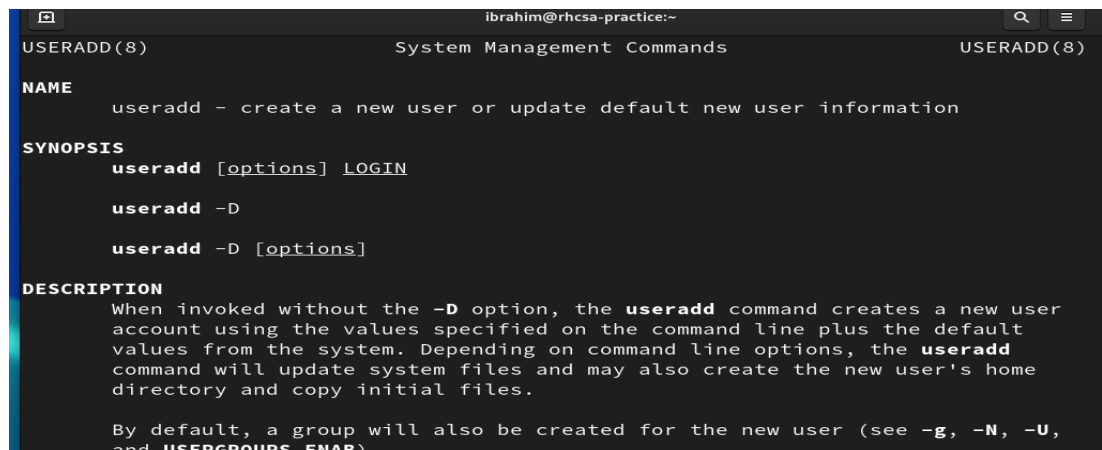
```
ibrahim@rhcsa-practice practice-files]$ cat /etc/passwd | grep "bash"
root:x:0:0:root:/root:/bin/bash
ibrahim:x:1000:1000:Ibrahim:/home/ibrahim:/bin/bash
user01:x:1001:1001::/home/user01:/bin/bash
Islam:x:1002:1002:Islam Askar:/home/Islam:/bin/bash
baduser:x:1003:1003::/home/baduser:/bin/bash
ibrahim@rhcsa-practice practice-files]$
```

Task 4: Getting Help in Red Hat Enterprise Linux (Chapter 4 - Getting Help)

1- Man Pages:

- a- Display the man page for the useradd command

>> man useradd



The screenshot shows a terminal window titled 'ibrahim@rhcsa-practice:~' displaying the man page for 'useradd'. The window has a title bar with a search icon and a menu icon. The man page content is as follows:

```
USERADD(8)                                System Management Commands                                USERADD(8)

NAME
    useradd - create a new user or update default new user information

SYNOPSIS
    useradd [options] LOGIN

    useradd -D

    useradd -D [options]

DESCRIPTION
    When invoked without the -D option, the useradd command creates a new user
    account using the values specified on the command line plus the default
    values from the system. Depending on command line options, the useradd
    command will update system files and may also create the new user's home
    directory and copy initial files.

    By default, a group will also be created for the new user (see -g, -N, -U,
    and USERGROUPS_ENAB).
```

- b- Identify and explain the option to specify a user's home directory in useradd.

-d, --home-dir HOME_DIR
The new user will be created using HOME_DIR as the value for the user's login directory. The default is to append the LOGIN name to BASE_DIR and use that as the login directory name. If the directory HOME_DIR does not exist, then it will be created unless the **-M** option is specified.

- c- Use the man command to find a command that can display the current system's uptime.

```
ibrahim@rhcsa-practice:~  
[ibrahim@rhcsa-practice ~]$ man -K uptime  
--Man-- next: logger(1) [ view (return) | skip (Ctrl-D) | quit (Ctrl-C) ]  
--Man-- next: unshare(1) [ view (return) | skip (Ctrl-D) | quit (Ctrl-C) ]  
--Man-- next: tload(1) [ view (return) | skip (Ctrl-D) | quit (Ctrl-C) ]  
--Man-- next: top(1) [ view (return) | skip (Ctrl-D) | quit (Ctrl-C) ]  
--Man-- next: uptime(1) [ view (return) | skip (Ctrl-D) | quit (Ctrl-C) ]  
  
UPTIME(1)                                User Commands                                UPTIME(1)  
  
NAME  
    uptime - Tell how long the system has been running.  
  
SYNOPSIS  
    uptime [options]  
  
DESCRIPTION  
    uptime gives a one line display of the following information. The current  
    time, how long the system has been running, how many users are currently  
    logged on, and the system load averages for the past 1, 5, and 15 minutes.  
  
    This is the same information contained in the header line displayed by w(1).
```

2- Help Commands:

- a- Use the --help option for the ls command and list three options for sorting output

```
ibrahim@rhcsa-practice ~]$ ls --help  
Usage: ls [OPTION]... [FILE]...  
List information about the FILES (the current directory by default).  
Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.  
  
Mandatory arguments to long options are mandatory for short options too.  
-a, --all                do not ignore entries starting with .  
-A, --almost-all        do not list implied . and ..  
--author                 with -l, print the author of each file  
-b, --escape             print C-style escapes for nongraphic characters  
--block-size=SIZE        with -l, scale sizes by SIZE when printing them;  
                        e.g., '--block-size=M'; see SIZE format below  
-B, --ignore-backups     do not list implied entries ending with ~  
-c                       with -lt: sort by, and show, ctime (time of last  
-C                       change)  
  
-S                       sort by file size, largest first  
--sort=WORD               sort by WORD instead of name: none (-U), size (-S),  
                        time (-t), version (-v), extension (-X)  
--time=WORD               change the default of using modification times;  
                        access time (-u): atime, access, use;  
                        change time (-c): ctime, status;  
                        birth time: birth, creation;  
                        with -l, WORD determines which time to show;  
                        with --sort=time, sort by WORD (newest first)
```

Task 5: Editing Text Files (Chapter 5 - Creating, Viewing, and Editing Text Files)

1- Editing Files:

- a- Open testfile.txt using the vi or nano editor, add a new line "Editing file for RHCSA practice" at the end, and save it.

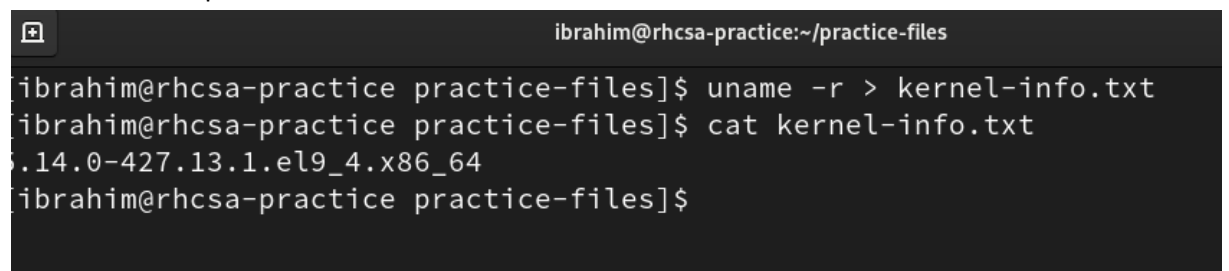
>> nano testfile.txt



```
ibrahim@rhcsa-practice:~/practice-files
GNU nano 5.6.1 testfile.txt Modified
RHSCA Practice Exam
Editing file for RHCSA Practice
save modified buffer?
Y Yes
N No ^C Cancel
```

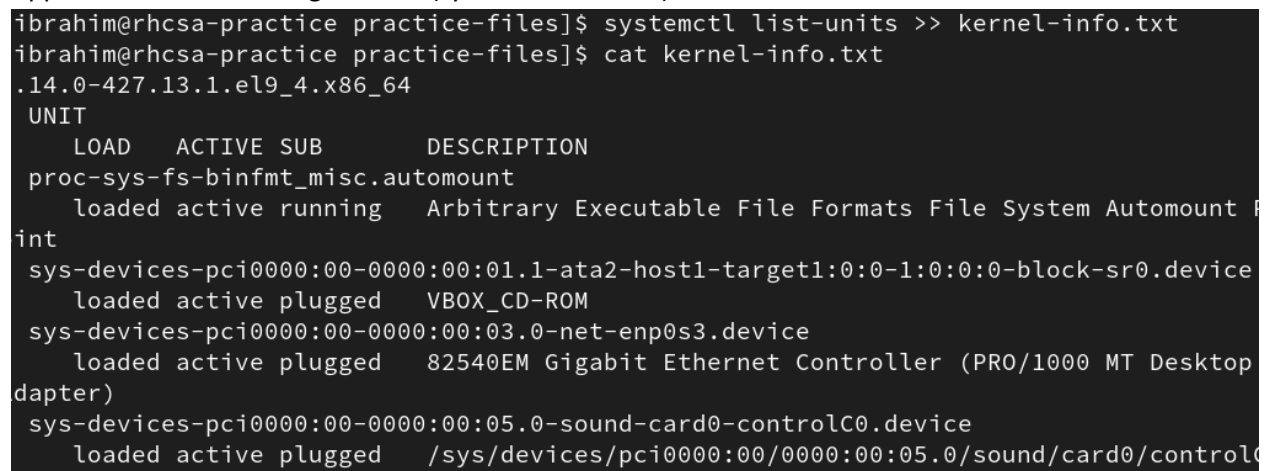
>> press ctrl+x then press Y to save the changes.

- b- Redirect the output of `uname -r` to a file named `kernel-info.txt`.



```
ibrahim@rhcsa-practice practice-files]$ uname -r > kernel-info.txt
ibrahim@rhcsa-practice practice-files]$ cat kernel-info.txt
5.14.0-427.13.1.el9_4.x86_64
ibrahim@rhcsa-practice practice-files]$
```

- c- Append the list of running services (`systemctl list-units`) to `kernel-info.txt`.



```
ibrahim@rhcsa-practice practice-files]$ systemctl list-units >> kernel-info.txt
ibrahim@rhcsa-practice practice-files]$ cat kernel-info.txt
5.14.0-427.13.1.el9_4.x86_64
UNIT
LOAD ACTIVE SUB DESCRIPTION
proc-sys-fs-binfmt_misc.automount
loaded active running Arbitrary Executable File Formats File System Automount
sys-devices-pci0000:00-0000:00:01.1-ata2-host1-target1:0:0-1:0:0:0-block-sr0.device
loaded active plugged VBOX_CD-ROM
sys-devices-pci0000:00-0000:00:03.0-net-enp0s3.device
loaded active plugged 82540EM Gigabit Ethernet Controller (PRO/1000 MT Desktop
dapter)
sys-devices-pci0000:00-0000:00:05.0-sound-card0-controlC0.device
loaded active plugged /sys/devices/pci0000:00/0000:00:05.0/sound/card0/control
```


2- Changing Environment Variables:

- a- Temporarily set the environment variable RHCSA_PRACTICE to "yes" and verify it.

```
ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ export RHCSA_PRACTICE=yes
[ibrahim@rhcsa-practice practice-files]$ echo $RHCSA_PRACTICE
yes
[ibrahim@rhcsa-practice practice-files]$
```

- b- Make the change permanent by adding it to your .bashrc file.

```
[ibrahim@rhcsa-practice practice-files]$ echo "export RHCSA_PRACTICE=yes" >> ~/.bashrc
[ibrahim@rhcsa-practice practice-files]$ cat ~/.bashrc
# .bashrc

# Source global definitions
if [ -f /etc/bashrc ]; then
    . /etc/bashrc
fi

# User specific aliases and functions
if [ -d ~/.bashrc.d ]; then
    for rc in ~/.bashrc.d/*; do
        if [ -f "$rc" ]; then
            . "$rc"
        fi
    done
fi

unset rc
export RHCSA_PRACTICE=yes
[ibrahim@rhcsa-practice practice-files]$
```

>>source ~/.bashrc

Task 6: User and Group Management (Chapter 6 - Managing Local Users and Groups)

1- Creating and Managing Users:

- a- Create a new user named rhcsauser.

```
ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ sudo useradd rhcsauser
[sudo] password for ibrahim:
[ibrahim@rhcsa-practice practice-files]$ tail -n 2 /etc/passwd
baduser:x:1003:1003::/home/baduser:/bin/bash
rhcsauser:x:1004:1004::/home/rhcsauser:/bin/bash
[ibrahim@rhcsa-practice practice-files]$
```

- b- Set the password for rhcsauser to RedHat2024!.

```

[ibrahim@rhcsa-practice practice-files]$ sudo passwd rhcsauser
Changing password for user rhcsauser.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[ibrahim@rhcsa-practice practice-files]$ echo "rhcsauser:RedHat2024!" | chpasswd
chpasswd: Permission denied.
chpasswd: cannot lock /etc/passwd; try again later.
[ibrahim@rhcsa-practice practice-files]$ echo "rhcsauser:RedHat2024!" | sudo chpasswd
[ibrahim@rhcsa-practice practice-files]$ █

[ibrahim@rhcsa-practice practice-files]$ su - rhcsauser
Password:
[rhcsauser@server ~]$ █

```

>> you can use one of the two methods (passwd command , chpasswd)

- c- Add rhcsauser to the wheel group for sudo access.

```

ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ sudo usermod -aG wheel rhcsauser
[ibrahim@rhcsa-practice practice-files]$ id rhcsauser
uid=1004(rhcsauser) gid=1004(rhcsauser) groups=1004(rhcsauser),10(wheel)
[ibrahim@rhcsa-practice practice-files]$

```

2- Managing Passwords and Groups

- a- Create a new group named practicegroup and add rhcsauser to this group.

```

[ibrahim@rhcsa-practice practice-files]$ sudo groupadd practicegroup
[ibrahim@rhcsa-practice practice-files]$ sudo tail -n 3 /etc/group
test:x:2222:
rhcsauser:x:1004:
practicegroup:x:30002:
[ibrahim@rhcsa-practice practice-files]$ sudo usermod -aG practicegroup rhcsauser
[ibrahim@rhcsa-practice practice-files]$ id rhcsauser
uid=1004(rhcsauser) gid=1004(rhcsauser) groups=1004(rhcsauser),10(wheel),30002(practicegroup)
[ibrahim@rhcsa-practice practice-files]$ █

```

- b- Lock the password for rhcsauser and then unlock it.

```

rhcsauser@server:~
[ibrahim@rhcsa-practice practice-files]$ sudo usermod -L rhcsauser
[ibrahim@rhcsa-practice practice-files]$ su - rhcsauser
Password:
su: Authentication failure
[ibrahim@rhcsa-practice practice-files]$ sudo usermod -U rhcsauser
[ibrahim@rhcsa-practice practice-files]$ su - rhcsauser
Password:
[rhcsauser@server ~]$

```

- c- Change rhcsauser's password expiration to force the user to reset the password after the next login.

```
ibrahim@rhcsa-practice:~/practice-files
[ibrahim@rhcsa-practice practice-files]$ sudo chage -d 0 rhcsauser
[ibrahim@rhcsa-practice practice-files]$ su - rhcsauser
Password:
You are required to change your password immediately (administrator enforced).
Current password:
```

```
ibrahim@rhcsa-practice practice-files]$ sudo chage -l rhcsauser
last password change           : password must be changed
password expires               : password must be changed
password inactive              : password must be changed
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
ibrahim@rhcsa-practice practice-files]$
```

3- Superuser Access:

- a- Use the sudo command as rhcsauser to create a file in /root called practice.txt with the content "This was created using sudo".

```
[rhcsauser@server ~]$ echo "this was created useing sudo" | sudo tee /root/practice.txt
We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.

[sudo] password for rhcsauser:
this was created useing sudo
[rhcsauser@server ~]$ sudo cat /r
root/ run/
[rhcsauser@server ~]$ sudo cat /root/practice.txt
this was created using sudo
[rhcsauser@server ~]$
```