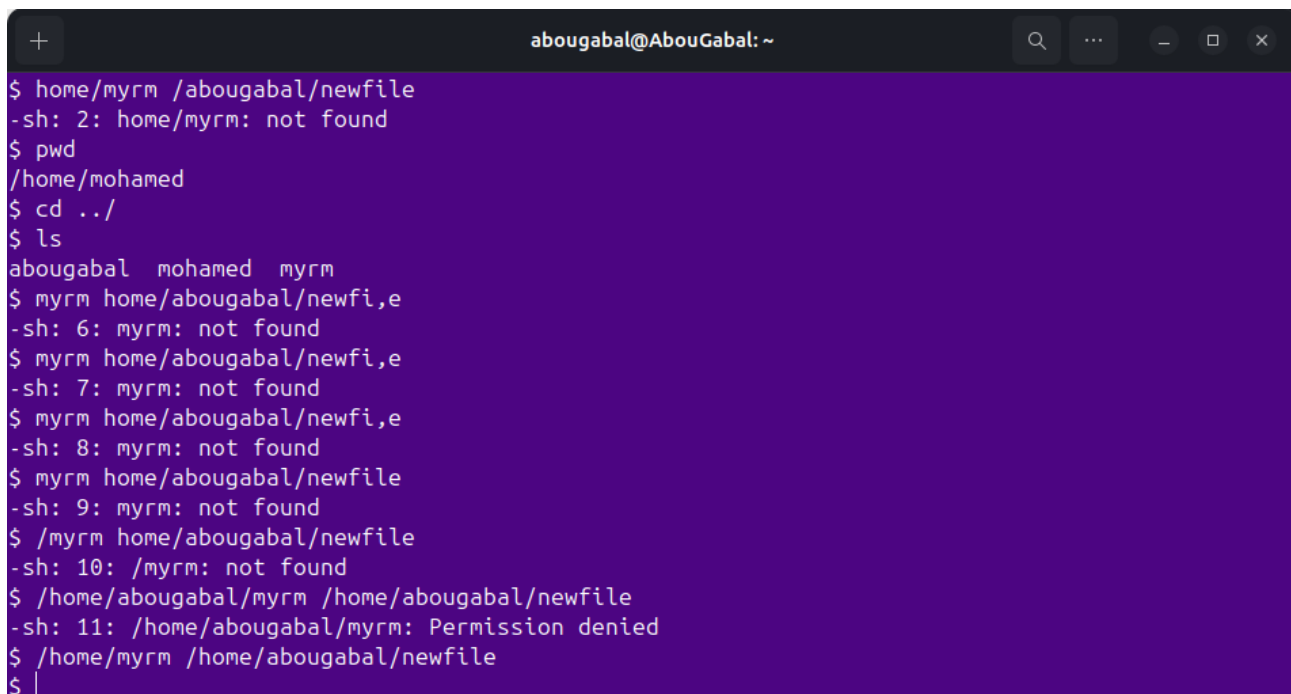


Continue: Lab 2

43. Copy the rm program to your home directory, naming it myrm, grant set-uid permission, what happens if one of the users starts your ~username/myrm to edit one of your own files?

A terminal window titled 'abougabal@AbouGabal: ~' with a purple background. It shows a series of commands and their outputs. The user attempts to run 'home/myrm /abougabal/newfile', which fails with '-sh: 2: home/myrm: not found'. They then check their location with 'pwd' (output: /home/mohamed) and list files with 'ls' (output: abougabal mohamed myrm). Subsequent attempts to run 'myrm' with various paths (home/abougabal/newfi,e, home/abougabal/newfile) all fail with '-sh: 6: myrm: not found', '-sh: 7: myrm: not found', '-sh: 8: myrm: not found', and '-sh: 9: myrm: not found'. They then try '/myrm home/abougabal/newfile' (output: -sh: 10: /myrm: not found) and '/home/abougabal/myrm /home/abougabal/newfile' (output: -sh: 11: /home/abougabal/myrm: Permission denied). The final command is '/home/myrm /home/abougabal/newfile'.

44.What is the difference between the set-uid and set-gid?

setuid: a bit that makes an executable run with the privileges of the owner of the file. setgid: a bit that makes an executable run with the privileges of the group of the file.

45.Create a directory with sticky-bit and write permissions on, grant all the users to access the directory, will any user be able to create and delete files from the directory?

```
abougabal@AbouGabal: ~  
rm: remove write-protected regular empty file 'filerandom'? y  
abougabal@AbouGabal: ~/batman$ ls  
abougabal@AbouGabal: ~/batman$ chmod 1777 batman  
chmod: cannot access 'batman': No such file or directory  
abougabal@AbouGabal: ~/batman$ cd ~  
abougabal@AbouGabal: ~$ chmod 1777 batman  
abougabal@AbouGabal: ~$ su - random  
Password:  
$ random  
-sh: 1: random: not found  
$ touch /home/abougabal/batman/newfile  
$ exit  
abougabal@AbouGabal: ~$ ls batman  
newfile  
abougabal@AbouGabal: ~$ rm batman/newfile  
rm: remove write-protected regular empty file 'batman/newfile'? y  
abougabal@AbouGabal: ~$ y  
y: command not found  
abougabal@AbouGabal: ~$ rm batman/newfile  
rm: cannot remove 'batman/newfile': No such file or directory  
abougabal@AbouGabal: ~$
```

46. Create a directory with set-gid permission, what do you notice when you create a new file or a directory?

Files or directories's group will inherit the group of the directory not the actual owner of these files.

```
abougabal@AbouGabal: ~  
abougabal@AbouGabal:~$ ls batman  
newfile  
abougabal@AbouGabal:~$ rm batman/newfile  
rm: remove write-protected regular empty file 'batman/newfile'? y  
abougabal@AbouGabal:~$ y  
y: command not found  
abougabal@AbouGabal:~$ rm batman/newfile  
rm: cannot remove 'batman/newfile': No such file or directory  
abougabal@AbouGabal:~$ mkdir spiderman  
abougabal@AbouGabal:~$ ls  
batman      Downloads  hello      myrm      Public     spiderman  
Desktop     file9      impo       'my testing dir' PycharmProjects Templates  
docs        filedir    Music      oldpasswd  rm          testing  
Documents   filevi     mycv       Pictures   snap        Videos  
abougabal@AbouGabal:~$ chmod 4777 spiderman  
abougabal@AbouGabal:~$ ls -ld spiderman/  
drwxrwxrwx 2 abougabal mohamed 4096 Jun 10 14:50 spiderman/  
abougabal@AbouGabal:~$ chmod 2777 spiderman  
abougabal@AbouGabal:~$ ls -ld spiderman/  
drwxrwsrwx 2 abougabal mohamed 4096 Jun 10 14:50 spiderman/  
abougabal@AbouGabal:~$
```

1. List the available shells in your system.

```
abougabal@AbouGabal: ~  
hared:/var/lib/flatpak/exports/share:/usr/local/share:/usr/share:/var/lib/snapd/desktop  
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/  
snap/bin:/snap/bin  
GDMSESSION=ubuntu  
DBUS_SESSION_BUS_ADDRESS=unix:path=/run/user/1000/bus  
_=/usr/bin/printenv  
OLDPWD=/home/abougabal/batman  
abougabal@AbouGabal: ~$ cat etc/shell  
cat: etc/shell: No such file or directory  
abougabal@AbouGabal: ~$ cat /etc/shell  
cat: /etc/shell: No such file or directory  
abougabal@AbouGabal: ~$ cat /etc/shells  
# /etc/shells: valid login shells  
/bin/sh  
/usr/bin/sh  
/bin/bash  
/usr/bin/bash  
/bin/rbash  
/usr/bin/rbash  
/usr/bin/dash  
abougabal@AbouGabal: ~$ |
```

2. List the environment variables in your current shell.

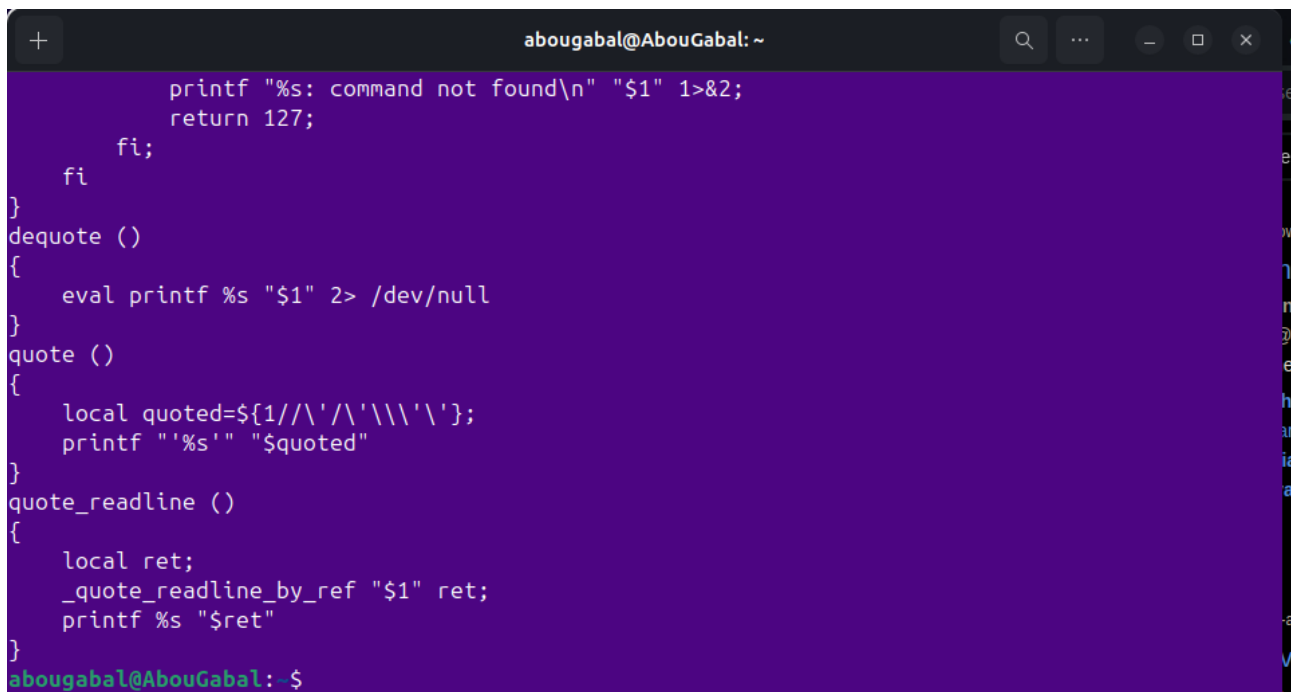
```
abougabal@AbouGabal: ~  
LESSCLOSE=/usr/bin/lesspipe %s %s  
XDG_SESSION_CLASS=user  
TERM=xterm-256color  
LESSOPEN=| /usr/bin/lesspipe %s  
USER=abougabal  
GNOME_TERMINAL_SERVICE=:1.139  
DISPLAY=:0  
SHLVL=1  
GSM_SKIP_SSH_AGENT_WORKAROUND=true  
QT_IM_MODULE=ibus  
XDG_RUNTIME_DIR=/run/user/1000  
DEBUGINFOD_URLS=https://debuginfod.ubuntu.com  
XDG_DATA_DIRS=/usr/share/ubuntu:/usr/share/gnome:/home/abougabal/.local/share/flatpak/exports/s  
hared:/var/lib/flatpak/exports/share:/usr/local/share:/usr/share:/var/lib/snapd/desktop  
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/  
snap/bin:/snap/bin  
GDMSESSION=ubuntu  
DBUS_SESSION_BUS_ADDRESS=unix:path=/run/user/1000/bus  
_=/usr/bin/printenv  
OLDPWD=/home/abougabal/batman  
abougabal@AbouGabal: ~$
```

3. List all of the environment variables for the bash shell.

Man bash

4. What are the commands that list the values of all the variables? => using set

5. What are the commands that list the value of



```
printf "%s: command not found\n" "$1" 1>&2;
return 127;
fi;
}
dequote ()
{
    eval printf %s "$1" 2> /dev/null
}
quote ()
{
    local quoted=${1//\'/\'\\\'\'};
    printf "%s\'" "$quoted"
}
quote_readline ()
{
    local ret;
    _quote_readline_by_ref "$1" ret;
    printf %s "$ret"
}
abougabal@AbouGabal: $
```

a specific variable?

echo \$VARIABLE_NAME

6. Display your current shell.

```
}
abougabal@AbouGabal:~$ $HOME
bash: /home/abougabal: Is a directory
abougabal@AbouGabal:~$ echo $SHELL
/bin/bash
abougabal@AbouGabal:~$ |
```

7. State the initialization files of: sh, ksh, csh, bash.

All files are in /etc/profile

except the csh is found in /etc/csh.login

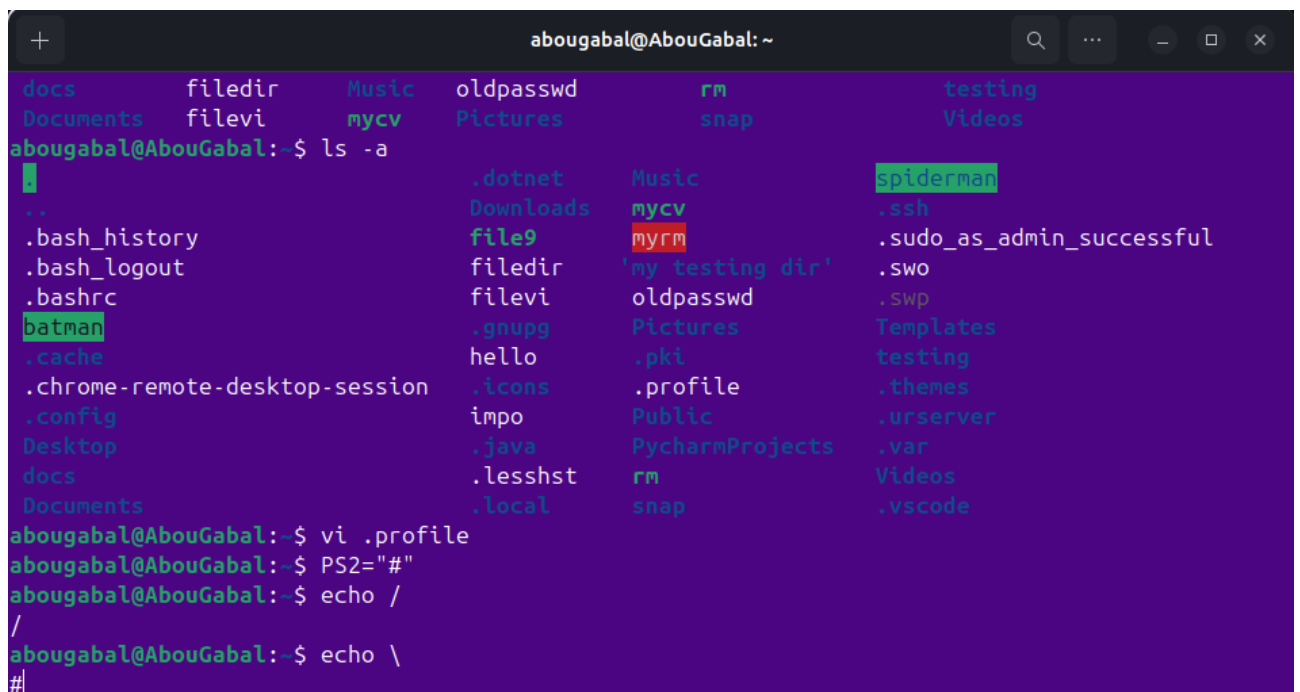
8. Edit in your profile to display date at login and change your prompt permanently.

```
abougabal@AbouGabal: ~
# ~/.profile: executed by the command interpreter for login shells.
# This file is not read by bash(1), if ~/.bash_profile or ~/.bash_login
# exists.
# see /usr/share/doc/bash/examples/startup-files for examples.
# the files are located in the bash-doc package.
date
PS1="abougabal>"
# the default umask is set in /etc/profile; for setting the umask
# for ssh logins, install and configure the libpam-umask package.
#umask 022

# if running bash
if [ -n "$BASH_VERSION" ]; then
    # include .bashrc if it exists
    if [ -f "$HOME/.bashrc" ]; then
        . "$HOME/.bashrc"
    fi
fi

# set PATH so it includes user's private bin if it exists
:wq
```

9. Execute the following command :
echo \ then press enter
Notice the prompt what is that and how can you
change it.



```
abougabal@AbouGabal: ~  
docs      filedir    Music      oldpasswd  rm          testing  
Documents  filevi     mycv       Pictures   snap        Videos  
abougabal@AbouGabal:~$ ls -a  
.  
..  
.bash_history  
.bash_logout  
.bashrc  
batman  
.cache  
.chrome-remote-desktop-session  
.conflg  
Desktop  
docs  
Documents  
abougabal@AbouGabal:~$ vi .profile  
abougabal@AbouGabal:~$ PS2="#"  
abougabal@AbouGabal:~$ echo /  
/  
abougabal@AbouGabal:~$ echo \  
#
```

10. Create a Bash shell alias named ls for the "ls -l" command

```
bash: alias: li -l: not found
bash: alias: lmo: not found
abougabal@AbouGabal:~$ alias lmo ="ls -l"
bash: alias: lmo: not found
bash: alias: =ls -l: not found
abougabal@AbouGabal:~$ alias LMO ="ls -l"
bash: alias: LMO: not found
bash: alias: =ls -l: not found
abougabal@AbouGabal:~$ alias ll = "ls -l"
alias ll='ls -alF'
bash: alias: =: not found
bash: alias: ls -l: not found
abougabal@AbouGabal:~$ ll
total 312
drwxrwxrwx 30 abougabal mohamed 4096 Jun 10 15:26 ./
drwxr-xr-x  4 root        root    4096 Jun 10 14:37 ../
-rw-r--r--  1 abougabal mohamed 11313 Jun 10 15:29 .bash_history
-rw-r--r--  1 abougabal mohamed   220 Mar 31 10:41 .bash_logout
-rw-r--r--  1 abougabal mohamed  3771 Mar 31 10:41 .bashrc
drwxrwxrwt  2 abougabal mohamed  4096 Jun 10 14:48 batman/
drwx----- 22 abougabal mohamed  4096 Jun  6 08:48 .cache/
-rw-rw-r--  1 abougabal mohamed   315 Jun  6 08:18 chrome-remote-session
```