Lab2

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?

```
google-chrome-stable_current_amd64.deb  myteam  Public   Videos
rahmasamy@rahmasamy-Vostro-3520:~$ cp usr/bin/rm /home/rahmasamy/myrm
cp: cannot stat 'usr/bin/rm': No such file or directory
rahmasamy@rahmasamy-Vostro-3520:~$ cp /bin/rm /home/rahmasamy/myrm
rahmasamy@rahmasamy-Vostro-3520:~$ ls -li
total 105220
4325485 drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 في مه Desktop
4325489 drwxr-xr-x 3 rahmasamy rahmasamy      4096 13:58 8   يون Documents
4325486 drwxr-xr-x 3 rahmasamy rahmasamy      4096 11:38 10  يون Downloads
4333454 -rw-rw-r-- 1 rahmasamy rahmasamy 107630040 01:06 30 في مه google-chrome-st
able_current_amd64.deb
4325490 drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 في مه Music
4329267 -rw--wx--x 1 rahmasamy rahmasamy       184 10:18 10  يون mycv3
4329242 -rwxr-xr-x 1 rahmasamy rahmasamy     59912 12:48 10  يون myrm
4606685 dr--rwxr-x 2 rahmasamy rahmasamy      4096 09:45 10  يون myteam
4606739 d--------- 2 rahmasamy rahmasamy      4096 10:27 10  يون nonperm
4325453 -rw-r--r-- 1 rahmasamy rahmasamy      2955 13:32 8   يون odpasswd
4325491 drwxr-xr-x 3 rahmasamy rahmasamy      4096 22:28 1   يون Pictures
4325488 drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 في مه Public
4329365 ---------- 1 rahmasamy rahmasamy         0 10:27 10  يون rahma
4325382 drwx------ 7 rahmasamy rahmasamy      4096 10:55 6   يون snap
4325487 drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 في مه Templates
4325492 drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 في مه Videos
rahmasamy@rahmasamy-Vostro-3520:~$
rahmasamy@rahmasamy-Vostro-3520:~$ chmod u+s ~/myrm
rahmasamy@rahmasamy-Vostro-3520:~$
```

44.What is the difference between the set-uid and set-gid?
Uid :Set user editing or executing as owner of the file
set-gid: user to execute the file with the permissions of the file's group.

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?

```
newuser is not in the sudoers file.  This incident will be reported.
newuser@rahmasamy-Vostro-3520:~$ mkdir mydir
newuser@rahmasamy-Vostro-3520:~$ chmod +wt mydir
newuser@rahmasamy-Vostro-3520:~$
```

Or

```
newuser@rahmasamy-Vostro-3520:~$ chmod 1777 mydir
newuser@rahmasamy-Vostro-3520:~$
```

```
rahmasamy@rahmasamy-Vostro-3520:~$ ls -l /home/newuser/mydir
total 0
-rw-rw-r-- 1 newuser newuser 0 13:59 10 يون file1
rahmasamy@rahmasamy-Vostro-3520:~$ whoami
rahmasamy
rahmasamy@rahmasamy-Vostro-3520:~$ rm /home/newuser/mydir/file1
rm: remove write-protected regular empty file '/home/newuser/mydir/file1'? yes
rm: cannot remove '/home/newuser/mydir/file1': Operation not permitted
rahmasamy@rahmasamy-Vostro-3520:~$ ls -l /home/newuser/mydir
total 0
-rw-rw-r-- 1 newuser newuser 0 13:59 10 يون file1
rahmasamy@rahmasamy-Vostro-3520:~$ sudo chmod o-t /home/newuser/mydir/
[sudo] password for rahmasamy:
rahmasamy@rahmasamy-Vostro-3520:~$ ls -ld /home/newuser/mydir
drwxrwxrwx 2 newuser newuser 4096 13:59 10 يون /home/newuser/mydir
rahmasamy@rahmasamy-Vostro-3520:~$ rm /home/newuser/mydir/file1
rm: remove write-protected regular empty file '/home/newuser/mydir/file1'? yes
rahmasamy@rahmasamy-Vostro-3520:~$
LC_NAME=ar_EG.UTF-8
```

==After running these commands, any user will be able to create and delete files within the
directory, but they'll only be able to delete their own files due to the sticky bit.==

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

```
rahmasamy@rahmasamy-Vostro-3520:~$ mkdir my_dir
rahmasamy@rahmasamy-Vostro-3520:~$ chmod g+s my_dir
rahmasamy@rahmasamy-Vostro-3520:~$ ls -ld my_dir
drwxrwsr-x 2 rahmasamy rahmasamy 4096 13:28 10 يون my_dir
rahmasamy@rahmasamy-Vostro-3520:~$ touch my_dir/3mo
rahmasamy@rahmasamy-Vostro-3520:~$ ls
3mo          Downloads                              my_dir    odpasswd   snap
3momariam    google-chrome-stable_current_amd64.deb myrm      Pictures   Templates
Desktop      Music                                  myteam    Public     Videos
Documents    mycv3                                  nonperm   rahma
```

Lab3

1-List all available shell in your system

```
rahmasamy@rahmasamy-Vostro-3520:~$ cat /etc/shells
# /etc/shells: valid login shells
/bin/sh
/bin/bash
/usr/bin/bash
/bin/rbash
/usr/bin/rbash
/usr/bin/sh
/bin/dash
/usr/bin/dash
```

2- print all env in current shell

```
/usr/btn/dash
rahmasamy@rahmasamy-Vostro-3520:~$ printenv
SHELL=/bin/bash
SESSION_MANAGER=local/rahmasamy-Vostro-3520:@/tmp/.ICE-unix/2102,unix/rahmasamy-
Vostro-3520:/tmp/.ICE-unix/2102
QT_ACCESSIBILITY=1
COLORTERM=truecolor
XDG_CONFIG_DIRS=/etc/xdg/xdg-ubuntu:/etc/xdg
SSH_AGENT_LAUNCHER=gnome-keyring
XDG_MENU_PREFIX=gnome-
GNOME_DESKTOP_SESSION_ID=this-is-deprecated
LC_ADDRESS=ar_EG.UTF-8
GNOME_SHELL_SESSION_MODE=ubuntu
LC_NAME=ar_EG.UTF-8
SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
```

3-man bash

```
            executed, if one is present.  Otherwise, it is set to  the  filename
            used to invoke bash, as given by argument zero.

    Shell Variables
        The following variables are set by the shell:

        _       At  shell  startup,  set to the pathname used to invoke the shell or
                shell script being executed as passed in the environment or argument
                list.   Subsequently,  expands  to the last argument to the previous
                simple command executed in the foreground,  after  expansion.   Also
                set  to  the  full pathname used to invoke each command executed and
                placed in the environment exported to that command.   When  checking
                mail, this parameter holds the name of the mail file currently being
                checked.
        BASH    Expands to the full filename used to invoke this instance of bash.
        BASHOPTS
                A colon-separated list of enabled shell options.  Each word  in  the
                list is a valid argument for the -s option to the shopt builtin com-
                mand (see SHELL BUILTIN COMMANDS below).  The options  appearing  in
                BASHOPTS  are those reported as on by shopt.  If this variable is in
                the environment when bash starts up, each shell option in  the  list
                will  be enabled before reading any startup files.  This variable is
                read-only.
        BASHPID
                Expands to the process ID of the current bash process.  This differs
                from  $$  under certain circumstances, such as subshells that do not
                require bash to be re-initialized.  Assignments to BASHPID  have  no
                effect.   If BASHPID is unset, it loses its special properties, even
                if it is subsequently reset.
        BASH_ALIASES
                An associative array variable whose members correspond to the inter-
                nal  list  of  aliases as maintained by the alias builtin.  Elements
                added to this array appear in the alias list; however, unsetting ar-
                ray elements currently does not cause aliases to be removed from the
                alias list.  If BASH_ALIASES is unset, it loses its special  proper-
                ties, even if it is subsequently reset.
        BASH_ARGC
                An  array variable whose values are the number of parameters in each
                frame of the current bash execution call stack.  The number  of  pa-
                rameters  to  the  current subroutine (shell function or script exe-
                cuted with . or source) is at the top of the stack.  When a  subrou-
                tine  is  executed,  the  number of parameters passed is pushed onto
                BASH_ARGC.  The shell sets BASH_ARGC only when in extended debugging
                mode  (see  the  description  of  the  extdebug  option to the shopt
                builtin below).  Setting extdebug after the shell has started to ex-
                ecute  a  script,  or referencing this variable when extdebug is not
                set, may result in inconsistent values.
        BASH_ARGV
                An array variable containing all of the parameters  in  the  current
                bash  execution call stack.  The final parameter of the last subrou-
                tine call is at the top of the stack; the  first  parameter  of  the
                initial  call  is at the bottom.  When a subroutine is executed, the
                parameters supplied are  pushed  onto  BASH_ARGV.   The  shell  sets
```

4-

```
rahmasamy@rahmasamy-Vostro-3520:~$ set
BASH=/bin/bash
BASHOPTS=checkwinsize:cmdhist:complete_fullquote:expand_aliases:extglob:extquote:forc
e_fignore:globasciiranges:histappend:interactive_comments:login_shell:progcomp:prompt
vars:sourcepath
BASH_ALIASES=()
BASH_ARGC=([0]="0")
BASH_ARGV=()
BASH_CMDS=()
BASH_COMPLETION_VERSINFO=([0]="2" [1]="11")
BASH_LINENO=()
BASH_REMATCH=()
BASH_SOURCE=()
BASH_VERSINFO=([0]="5" [1]="1" [2]="16" [3]="1" [4]="release" [5]="x86_64-pc-linux-gn
u")
BASH_VERSION='5.1.16(1)-release'
COLUMNS=85
COMP_WORDBREAKS=$' \t\n"\'><=;|&(:'
DEFAULT_XDG_CONFIG_DIRS=/etc/xdg
DEFAULT_XDG_DATA_DIRS=/usr/local/share/:/usr/share/
DIRSTACK=()
EUID=1000
SESSION_MANAGER=local/rahmasamy-Vostro-3520:@/tmp/.ICE-unix/2102,unix/rahmasamy-
Vostro-3520:/tmp/.ICE-unix/2102
```

5-

```
rahmasamy@rahmasamy-Vostro-3520:~$ var="rahma"
rahmasamy@rahmasamy-Vostro-3520:~$ echo $var
rahma
rahmasamy@rahmasamy-Vostro-3520:~$
```

6-

```
rahmasamy@rahmasamy-Vostro-3520:~$ sh
$ echo $SHELL
/bin/bash
$ echo $0
sh
```

7-

Bash : .profile

Bourne Shell (sh):.profile

Korn Shell (ksh): .profile

C Shell (csh): .login

8-

```
rahmasamy@rahmasamy-Vostro-3520:~$ nano ~/.bashrc
rahmasamy@rahmasamy-Vostro-3520:~$ bash
welcome rahma 10-6-2024
rahmasamy@rahmasamy-Vostro-3520:~$
exit
rahmasamy@rahmasamy-Vostro-3520:~$
```

9- when i press / the > shell will start (continous prompt)

```
_=/usr/bin/printenv
rahmasamy@rahmasamy-Vostro-3520:~$ echo \
> export PS2=">>>"
export PS2=>>>
rahmasamy@rahmasamy-Vostro-3520:~$ █
```

10-

```
wetcome ranma 10-0-2024
rahmasamy@rahmasamy-Vostro-3520:~$ is
total 105228
drwxrwxr-x 2 rahmasamy rahmasamy      4096 3 13:23 10 يون mo
-rw-rw-r-- 1 rahmasamy rahmasamy         0 3 13:23 10 يون momariam
drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 مي Desktop
drwxr-xr-x 3 rahmasamy rahmasamy      4096 13:58 8   يون Documents
drwxr-xr-x 3 rahmasamy rahmasamy      4096 11:38 10 يون Downloads
-rw-rw-r-- 1 rahmasamy rahmasamy 107630040 01:06 30 مي google-chrome-stable_current_
amd64.deb
drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 مي Music
-rw--wx--x 1 rahmasamy rahmasamy       184 10:18 10 يون mycv3
drwxrwsr-x 2 rahmasamy rahmasamy      4096 13:32 10 يون my_dir
-rwsr-xr-x 1 rahmasamy rahmasamy     59912 12:48 10 يون myrm
dr--rwxr-x 2 rahmasamy rahmasamy      4096 09:45 10 يون myteam
d--------- 2 rahmasamy rahmasamy      4096 10:27 10 يون nonperm
-rw-r--r-- 1 rahmasamy rahmasamy      2955 13:32 8   يون odpasswd
drwxr-xr-x 3 rahmasamy rahmasamy      4096 22:28 1   يون Pictures
drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 مي Public
---------- 1 rahmasamy rahmasamy         0 10:27 10 يون rahma
drwx------ 7 rahmasamy rahmasamy      4096 10:55 6   يون snap
drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 مي Templates
drwxr-xr-x 2 rahmasamy rahmasamy      4096 00:58 22 مي Videos
rahmasamy@rahmasamy-Vostro-3520:~$ █
```