Module – 1

Assignment Submission – embedUR Linux Course

29.01.2026

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Question – 1

Create a file and add executable permission to all users (user, group and others)

```
baala@ItsB-Laptop:~/assignments/module1$ touch Question1.txt
baala@ItsB-Laptop:~/assignments/module1$ ls -l Question1.txt
-rw-r--r-- 1 baala baala 0 Jan 29 09:51 Question1.txt
baala@ItsB-Laptop:~/assignments/module1$ chmod 755 Question1.txt
baala@ItsB-Laptop:~/assignments/module1$ ls -l Question1.txt
-rwxr-xr-x 1 baala baala 0 Jan 29 09:51 Question1.txt
baala@ItsB-Laptop:~/assignments/module1$
```

Commands used:

touch: Creates a file with the specified file name.

ls -l : Lists the detailed information about the files and directories in the current working directory

chmod : Change Mode Command, used to define/ change access rules to each user.

I have used Octal notation to depict permission for each user

- Read = 4
- Write = 2
- Execute = 1

Group and Others = 5 (4+1)

Owner = 7 (4+2+1)

This adds the executable permission to all users (and also read the file)

Question 2

Create a file and remove write permission for group user alone.

```
baala@ItsB-Laptop:~/assignments/module1$ touch Question2.txt
baala@ItsB-Laptop:~/assignments/module1$ chmod g-w Question2.txt
baala@ItsB-Laptop:~/assignments/module1$ ls -l Question2.txt
-rw-r--r-- 1 baala baala 0 Jan 29 10:07 Question2.txt
baala@ItsB-Laptop:~/assignments/module1$
```

New commands:

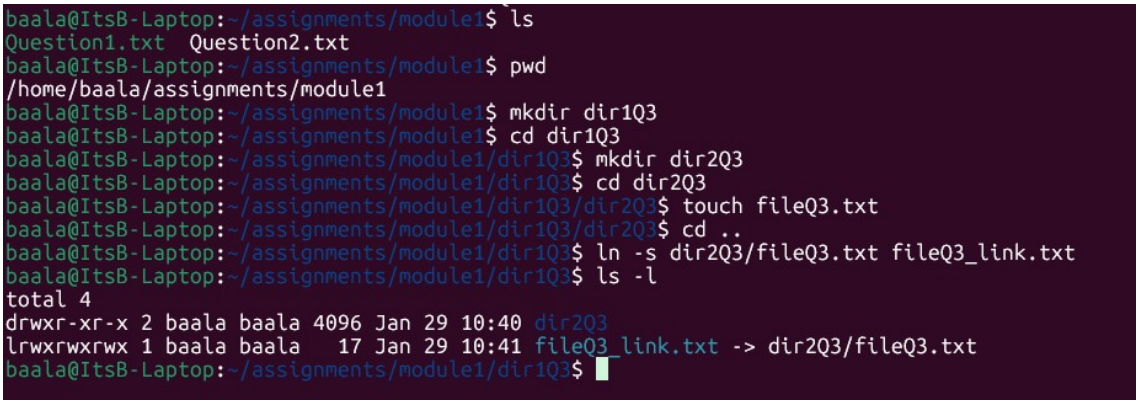
g-w : indicates the removal of write permissions from Group users.

For further differentiation, I have added all permissions for both Owner and Other user, but removed the write permission for the Group user.

```
baala@ItsB-Laptop:~/assignments/module1$ touch Question2.txt
baala@ItsB-Laptop:~/assignments/module1$ ls -l Question2.txt
-rw-r--r-- 1 baala baala 0 Jan 29 10:01 Question2.txt
baala@ItsB-Laptop:~/assignments/module1$ chmod 757 Question2.txt
baala@ItsB-Laptop:~/assignments/module1$ ls -l Question2.txt
-rwxr-xrwx 1 baala baala 0 Jan 29 10:01 Question2.txt
baala@ItsB-Laptop:~/assignments/module1$
```

Question 3

Create a file and add a softlink to the file in different directory (Eg : Create a file in dir1/dir2/file and create a softlink for file inside dir1)



New Commands:

pwd: Prints the current working directory

mkdir: Creates a new directory

cd: Changes to the directory at the address or goes to the directory name mentioned

ln -s: Creates the softlink needed.

Question 4

Use ps command with options to display all active process running on the system

Command :

ps : shows active processes, options like

a = show processes for all users

u = user-oriented format showing CPU%, memory%, etc.

x = include processes not attached to a terminal.

Resources were referred for more options.

```
baala@ItsB-Laptop:~$ ps
    PID TTY          TIME CMD
  11343 pts/2    00:00:00 bash
  13184 pts/2    00:00:00 ps
baala@ItsB-Laptop:~$ ps a
    PID TTY      STAT   TIME COMMAND
    205 hvc0     Ss+    0:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
    230 tty1     Ss+    0:00 /sbin/agetty -o -p -- \u --noclear - linux
    374 pts/1    Ss     0:00 /bin/login -f
    440 pts/1    S+     0:00 -bash
  11343 pts/2    Ss     0:00 -bash
  13185 pts/2    R+     0:00 ps a
baala@ItsB-Laptop:~$ ps -a
    PID TTY          TIME CMD
    440 pts/1    00:00:00 bash
  13190 pts/2    00:00:00 ps
baala@ItsB-Laptop:~$ ps -d
    PID TTY          TIME CMD
      2 ?        00:00:00 init-systemd(Ub
      6 ?        00:00:00 init
    421 ?        00:00:00 (sd-pam)
    440 pts/1    00:00:00 bash
  11342 ?        00:00:00 Relay(11343)
  13191 ?        00:00:00 (udev-worker)
  13192 ?        00:00:00 (udev-worker)
  13193 pts/2    00:00:00 ps
```

```
baala@ItsB-Laptop:~$ ps -a -N
    PID TTY          TIME CMD
      1 ?        00:00:02 systemd
      2 ?        00:00:00 init-systemd(Ub
      6 ?        00:00:00 init
     42 ?        00:00:01 systemd-journal
     88 ?        00:00:22 systemd-udevd
    160 ?        00:00:00 systemd-resolve
    164 ?        00:00:00 systemd-timesyn
    173 ?        00:00:00 cron
    174 ?        00:00:00 dbus-daemon
    189 ?        00:00:00 systemd-logind
    205 hvc0     00:00:00 agetty
    220 ?        00:00:00 rsyslogd
    230 tty1     00:00:00 agetty
    236 ?        00:00:00 unattended-upgr
    374 pts/1    00:00:00 login
    420 ?        00:00:00 systemd
    421 ?        00:00:00 (sd-pam)
    779 ?        00:00:01 polkitd
   2273 ?        00:00:00 dbus-daemon
   2307 ?        00:00:00 at-spi-bus-laun
  11341 ?        00:00:00 SessionLeader
  11342 ?        00:00:00 Relay(11343)
  11343 pts/2    00:00:00 bash
  13055 ?        00:00:00 wsl-pro-service
  13224 ?        00:00:00 (udev-worker)
  13225 ?        00:00:00 (udev-worker)
```

```
baala@ItsB-Laptop:~$ ps -A
    PID TTY          TIME CMD
      1 ?        00:00:02 systemd
      2 ?        00:00:00 init-systemd(Ub
      6 ?        00:00:00 init
     42 ?        00:00:01 systemd-journal
     88 ?        00:00:22 systemd-udevd
    160 ?        00:00:00 systemd-resolve
    164 ?        00:00:00 systemd-timesyn
    173 ?        00:00:00 cron
    174 ?        00:00:00 dbus-daemon
    189 ?        00:00:00 systemd-logind
    205 hvc0     00:00:00 agetty
    220 ?        00:00:00 rsyslogd
    230 tty1     00:00:00 agetty
    236 ?        00:00:00 unattended-upgr
    374 pts/1    00:00:00 login
    420 ?        00:00:00 systemd
    421 ?        00:00:00 (sd-pam)
    440 pts/1    00:00:00 bash
    779 ?        00:00:01 polkitd
   2273 ?        00:00:00 dbus-daemon
   2307 ?        00:00:00 at-spi-bus-laun
  11341 ?        00:00:00 SessionLeader
  11342 ?        00:00:00 Relay(11343)
  11343 pts/2    00:00:00 bash
  13055 ?        00:00:00 wsl-pro-service
  13194 ?        00:00:00 (udev-worker)
  13195 ?        00:00:00 (udev-worker)
  13196 pts/2    00:00:00 ps
```

```
baala@ItsB-Laptop:~$ ps aux
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.1  21712 12092 ?        Ss   03:28   0:02 /sbin/init
root           2  0.0  0.0   3120  2176 ?        Sl   03:28   0:00 /init
root           6  0.0  0.0   3120  1792 ?        Sl   03:28   0:00 plan9 --control-socket 7 --log-level 4 --
root          42  0.0  0.2  66748 16836 ?        S<s  03:28   0:01 /usr/lib/systemd/systemd-journald
root          88  0.0  0.0  25272  6272 ?        Ss   03:28   0:22 /usr/lib/systemd/systemd-udevd
systemd+     160  0.0  0.1  21456 12672 ?        Ss   03:28   0:00 /usr/lib/systemd/systemd-resolved
systemd+     164  0.0  0.0  91024  7680 ?        Ssl  03:28   0:00 /usr/lib/systemd/systemd-timesyncd
root         173  0.0  0.0   4236  2560 ?        Ss   03:28   0:00 /usr/sbin/cron -f -P
message+     174  0.0  0.0   9632  4736 ?        Ss   03:28   0:00 @dbus-daemon --system --address=systemd:
root         189  0.0  0.1  17964  8192 ?        Ss   03:28   0:00 /usr/lib/systemd/systemd-logind
root         205  0.0  0.0   3160  1920 hvc0     Ss+  03:28   0:00 /sbin/agetty -o -p -- \u --noclear --keep
syslog       220  0.0  0.0 222508  5248 ?        Ssl  03:28   0:00 /usr/sbin/rsyslogd -n -iNONE
root         230  0.0  0.0   3116  1792 tty1     Ss+  03:28   0:00 /sbin/agetty -o -p -- \u --noclear - linu
root         236  0.0  0.2 107024 22144 ?        Ssl  03:28   0:00 /usr/bin/python3 /usr/share/unattended-up
root         374  0.0  0.0   6696  4352 pts/1    Ss   03:28   0:00 /bin/login -f
baala        420  0.0  0.1  20240 11008 ?        Ss   03:28   0:00 /usr/lib/systemd/systemd --user
baala        421  0.0  0.0  21148  3516 ?        S    03:28   0:00 (sd-pam)
baala        440  0.0  0.0   6072  4864 pts/1    S+   03:28   0:00 -bash
polkitd      779  0.0  0.0 308164  7808 ?        Ssl  03:29   0:01 /usr/lib/polkit-1/polkitd --no-debug
baala       2273  0.0  0.0   9448  4992 ?        Ss   03:34   0:00 /usr/bin/dbus-daemon --session --address=
baala       2307  0.0  0.0 382812  7040 ?        Ssl  03:34   0:00 /usr/libexec/at-spi-bus-launcher
root       11341  0.0  0.0   3128   904 ?        Ss   09:37   0:00 /init
root       11342  0.0  0.0   3144  1040 ?        S    09:37   0:00 /init
baala      11343  0.0  0.0   6072  5248 pts/2    Ss   09:37   0:00 -bash
root       13055  0.0  0.1 1756620 12928 ?       Ssl  10:43   0:00 /usr/libexec/wsl-pro-service
root       13227  0.0  0.0  25276  3656 ?        S    10:48   0:00 (udev-worker)
root       13228  0.0  0.0  25276  3656 ?        S    10:48   0:00 (udev-worker)
baala      13229  0.0  0.0   8284  4224 pts/2    R+   10:48   0:00 ps aux
```

```
baala@ItsB-Laptop:~$ ps -T
    PID    SPID TTY          TIME CMD
  11343   11343 pts/2    00:00:00 bash
  13234   13234 pts/2    00:00:00 ps
baala@ItsB-Laptop:~$ ps -x
    PID TTY      STAT   TIME COMMAND
    420 ?        Ss     0:00 /usr/lib/systemd/systemd --user
    421 ?        S      0:00 (sd-pam)
    440 pts/1    S+     0:00 -bash
   2273 ?        Ss     0:00 /usr/bin/dbus-daemon --session --address=systemd: --nofork --nopidfile --system
   2307 ?        Ssl    0:00 /usr/libexec/at-spi-bus-launcher
  11343 pts/2    Ss     0:00 -bash
  13237 pts/2    R+     0:00 ps -x
baala@ItsB-Laptop:~$
```

Learnt and referred from :

https://www.geeksforgeeks.org/linux-unix/ps-command-in-linux-with-examples/

Question 5

Create 3 files in a dir1 and re-direct the output of list command with sorted by timestamp of the files to a file

```
baala@ItsB-Laptop:~/assignments/module1$ mkdir dir1Q4
baala@ItsB-Laptop:~/assignments/module1$ ls
Question1.txt  Question2.txt  dir1Q3  dir1Q4
baala@ItsB-Laptop:~/assignments/module1$ cd dir1Q4
baala@ItsB-Laptop:~/assignments/module1/dir1Q4$ ls
baala@ItsB-Laptop:~/assignments/module1/dir1Q4$ touch File1.txt
baala@ItsB-Laptop:~/assignments/module1/dir1Q4$ touch File2.txt
baala@ItsB-Laptop:~/assignments/module1/dir1Q4$ touch File3.txt
baala@ItsB-Laptop:~/assignments/module1/dir1Q4$ ls -lt
total 0
-rw-r--r-- 1 baala baala 0 Jan 29 11:09 File3.txt
-rw-r--r-- 1 baala baala 0 Jan 29 11:08 File2.txt
-rw-r--r-- 1 baala baala 0 Jan 29 11:06 File1.txt
baala@ItsB-Laptop:~/assignments/module1/dir1Q4$ ls -lt > Question4.txt
baala@ItsB-Laptop:~/assignments/module1/dir1Q4$ cat Question4.txt
total 0
-rw-r--r-- 1 baala baala 0 Jan 29 11:10 Question4.txt
-rw-r--r-- 1 baala baala 0 Jan 29 11:09 File3.txt
-rw-r--r-- 1 baala baala 0 Jan 29 11:08 File2.txt
-rw-r--r-- 1 baala baala 0 Jan 29 11:06 File1.txt
baala@ItsB-Laptop:~/assignments/module1/dir1Q4$
```

New Commands:

ls -lt : Lists all files in order of time (newer files first)

ls -lt > filename.txt : “>” is used to redirect the output

cat: concatenates the content to the filename.