National Textile University

Department of Computer Science

Subject:

Operating system

Submitted To:

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Submitted By:

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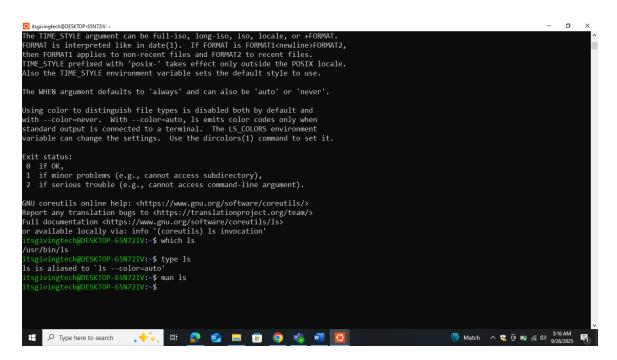
Registration No:

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Lab No:

2

Semester:

5

1.1   Understanding the Linux Environment:
         Hand on activity:

```
itsgivingtech@DESKTOP-65N72IV:~$ whoami
itsgivingtech
itsgivingtech@DESKTOP-65N72IV:~$ pwd
/home/itsgivingtech
itsgivingtech@DESKTOP-65N72IV:~$ uname -a
Linux DESKTOP-65N72IV 6.6.87.2-microsoft-standard-WSL2 #1 SMP PREEMPT_DYNAMIC Thu Jun  5 18:30:46 UTC 2025 x86_64
itsgivingtech@DESKTOP-65N72IV:~$ date
Fri Sep 26 03:04:26 PDT 2025
itsgivingtech@DESKTOP-65N72IV:~$ _
```

1.2   Getting Help in Linux

```
The TIME_STYLE argument can be full-iso, long-iso, iso, locale, or +FORMAT.
FORMAT is interpreted like in date(1).  If FORMAT is FORMAT1<newline>FORMAT2,
then FORMAT1 applies to non-recent files and FORMAT2 to recent files.
TIME_STYLE prefixed with 'posix-' takes effect only outside the POSIX locale.
Also the TIME_STYLE environment variable sets the default style to use.

The WHEN argument defaults to 'always' and can also be 'auto' or 'never'.

Using color to distinguish file types is disabled both by default and
with --color=never.  With --color=auto, ls emits color codes only when
standard output is connected to a terminal.  The LS_COLORS environment
variable can change the settings.  Use the dircolors(1) command to set it.

Exit status:
 0  if OK,
 1  if minor problems (e.g., cannot access subdirectory),
 2  if serious trouble (e.g., cannot access command-line argument).

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Report any translation bugs to <https://translationproject.org/team/>
Full documentation <https://www.gnu.org/software/coreutils/ls>
or available locally via: info '(coreutils) ls invocation'
itsgivingtech@DESKTOP-65N72IV:~$ which ls
/usr/bin/ls
itsgivingtech@DESKTOP-65N72IV:~$ type ls
ls is aliased to `ls --color=auto'
itsgivingtech@DESKTOP-65N72IV:~$ man ls
itsgivingtech@DESKTOP-65N72IV:~$
```

Part 2: File System Navigation

2.1 Understanding Linux Directory Structure


```
itsgivingtech@DESKTOP-65N72IV:~$ ls/
-bash: ls/: No such file or directory
itsgivingtech@DESKTOP-65N72IV:~$ ls /
bin                boot    etc     init    lib.usr-is-merged    lost+found    mnt    proc    run    sbin.usr-is-merged    srv    tmp    var
bin.usr-is-merged  dev     home    lib     lib64                media         opt    root    sbin   snap                  sys    usr
itsgivingtech@DESKTOP-65N72IV:~$ ls -la
total 76
drwxr-x--- 10 itsgivingtech itsgivingtech 4096 Sep 26 03:16 .
drwxr-xr-x  3 root          root          4096 Sep 18 01:54 ..
-rw-------  1 itsgivingtech itsgivingtech 2095 Sep 25 20:09 .bash_history
-rw-r--r--  1 itsgivingtech itsgivingtech  220 Sep 18 01:54 .bash_logout
-rw-r--r--  1 itsgivingtech itsgivingtech 3771 Sep 18 01:54 .bashrc
drwx------  4 itsgivingtech itsgivingtech 4096 Sep 25 06:53 .cache
-rw-r--r--  1 itsgivingtech itsgivingtech   64 Sep 18 02:25 .gitconfig
-rw-------  1 itsgivingtech itsgivingtech   20 Sep 26 03:16 .lesshst
-rw-rw-r--  1 itsgivingtech itsgivingtech    0 Sep 26 02:27 .motd_shown
-rw-r--r--  1 itsgivingtech itsgivingtech  807 Sep 18 01:54 .profile
drwx------  3 itsgivingtech itsgivingtech 4096 Sep 25 05:00 .ssh
-rw-r--r--  1 itsgivingtech itsgivingtech    0 Sep 18 02:22 .sudo_as_admin_successful
-rw-------  1 itsgivingtech itsgivingtech  814 Sep 26 02:45 .viminfo
drwxr-xr-x  3 itsgivingtech itsgivingtech 4096 Sep 18 02:12 .vscode-remote-containers
drwxr-xr-x  5 itsgivingtech itsgivingtech 4096 Sep 18 02:12 .vscode-server
-rw-r--r--  1 itsgivingtech itsgivingtech  183 Sep 18 02:12 .wget-hsts
drwxr-xr-x  3 itsgivingtech itsgivingtech 4096 Sep 25 05:09 ASM.TEST
drwxr-xr-x  5 itsgivingtech itsgivingtech 4096 Sep 25 05:49 Operating-system
-rw-r--r--  1 itsgivingtech itsgivingtech    0 Sep 26 02:30 file.txt
drwxr-xr-x  3 itsgivingtech itsgivingtech 4096 Sep 26 02:34 folder
-rw-r--r--  1 itsgivingtech itsgivingtech    6 Sep 26 02:33 hello.txt
drwxr-xr-x  3 itsgivingtech itsgivingtech 4096 Sep 18 10:14 my-first-project
itsgivingtech@DESKTOP-65N72IV:~$
```



```
itsgivingtech@DESKTOP-65N72IV:~$ cd /home
itsgivingtech@DESKTOP-65N72IV:/home$ cd~
Command 'cd~' not found, did you mean:
  command 'cdb' from deb tinycdb (0.81-1)
  command 'cde' from deb cde (0.1+git9-g551e54d-1.2)
  command 'cdi' from deb cdo (2.3.0-1)
  command 'cd5' from deb cd5 (0.1-4)
  command 'cdw' from deb cdw (0.8.1-3)
  command 'cdo' from deb cdo (2.3.0-1)
  command 'cdp' from deb irpas (0.10-9)
Try: sudo apt install <deb name>
itsgivingtech@DESKTOP-65N72IV:/home$ cd ~
itsgivingtech@DESKTOP-65N72IV:~$ cd -
/home
itsgivingtech@DESKTOP-65N72IV:/home$
```

2.2 Basic Navigation Commands (15 minutes):

```
itsgivingtech@DESKTOP-65N72IV:~/folder1$ pwd
/home/itsgivingtech/folder1
itsgivingtech@DESKTOP-65N72IV:~/folder1$ ls
file2.txt
itsgivingtech@DESKTOP-65N72IV:~/folder1$ ls -l
total 0
-rw-r--r-- 1 itsgivingtech itsgivingtech 0 Sep 26 03:22 file2.txt
itsgivingtech@DESKTOP-65N72IV:~/folder1$ ls -la
total 8
drwxr-xr-x  2 itsgivingtech itsgivingtech 4096 Sep 26 03:22 .
drwxr-x--- 11 itsgivingtech itsgivingtech 4096 Sep 26 03:22 ..
-rw-r--r--  1 itsgivingtech itsgivingtech    0 Sep 26 03:22 file2.txt
itsgivingtech@DESKTOP-65N72IV:~/folder1$ ls -lh
total 0
-rw-r--r-- 1 itsgivingtech itsgivingtech 0 Sep 26 03:22 file2.txt
itsgivingtech@DESKTOP-65N72IV:~/folder1$
itsgivingtech@DESKTOP-65N72IV:~/folder1$ cd
itsgivingtech@DESKTOP-65N72IV:~$ cd ..
itsgivingtech@DESKTOP-65N72IV:/home$ cd ~
itsgivingtech@DESKTOP-65N72IV:~$ cd /
itsgivingtech@DESKTOP-65N72IV:/$
```

Part 3: File and Directory Operations **

3.1 Creating and Managing Files/Directories:

```
itsgivingtech@DESKTOP-65N72IV:~$ mkdir mylab2
itsgivingtech@DESKTOP-65N72IV:~$ mkdir -p test/sub/dir
itsgivingtech@DESKTOP-65N72IV:~$ touch file2.txt
itsgivingtech@DESKTOP-65N72IV:~$ touch file3.txt file3.txt
itsgivingtech@DESKTOP-65N72IV:~$ nano hello.txt
itsgivingtech@DESKTOP-65N72IV:~$ echo "hello linux" > hello.txt
itsgivingtech@DESKTOP-65N72IV:~$ cat hello.txt
hello linux
itsgivingtech@DESKTOP-65N72IV:~$ less hello.txt
itsgivingtech@DESKTOP-65N72IV:~$ head hello.txt
hello linux
itsgivingtech@DESKTOP-65N72IV:~$ tail hello.txt
hello linux
itsgivingtech@DESKTOP-65N72IV:~$ wc hello.txt
 1  2 12 hello.txt
itsgivingtech@DESKTOP-65N72IV:~$
```

3.2 Copying, Moving, and Deleting:

Part 4: File Permissions and Ownership

4.1 Understanding File Permissions