

National Textile University, Faisalabad



Department of Computer Science

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Course	Operating system
Submitted To	Sir Nasir
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Lab No.	2 class work
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Lab No. 2 Operating system

Students open WSL2 terminal and explore

whoami # Check current user

pwd # Print working directory

uname -a # System information

date # Current date and time

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• dawood@DESKTOP-V4SDVD9:~$ whoami
dawood
• dawood@DESKTOP-V4SDVD9:~$ pwd
/home/dawood
• dawood@DESKTOP-V4SDVD9:~$ uname -a
Linux DESKTOP-V4SDVD9 5.10.16.3-microsoft-standard-WSL2 #1 SMP Fri Apr 2 22:23:49 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
• dawood@DESKTOP-V4SDVD9:~$ date
Fri Sep 26 19:01:41 PKT 2025
• dawood@DESKTOP-V4SDVD9:~$ █

```

Commands to demonstrate:

man ls # Manual pages

ls --help # Built-in help

which ls # Location of commands

type ls # Command type information

```

● dawood@DESKTOP-V4SDVD9:~$ man ls
● dawood@DESKTOP-V4SDVD9:~$ 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
                        change of file status information);
                        with -l: show ctime and sort by name;
                        otherwise: sort by ctime, newest first

-C                       list entries by columns
    --color[=WHEN]       color the output WHEN; more info below
-d, --directory          list directories themselves, not their contents
-D, --dired              generate output designed for Emacs' dired mode
-f                       list all entries in directory order
-F, --classify[=WHEN]   append indicator (one of */=>@|) to entries WHEN
    --file-type           likewise, except do not append '*'
    --format=WORD        across -x, commas -m, horizontal -x, long -l,
                        single-column -1, verbose -l, vertical -C

    --full-time           like -l --time-style=full-iso
-g                       like -l, but do not list owner
    --group-directories-first

```

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PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

dawood@DESKTOP-V4SDVD9:~$ ls
Lab01-hometask  Operating-System-5th-1145
dawood@DESKTOP-V4SDVD9:~$ cd ..
dawood@DESKTOP-V4SDVD9:/home$ cd.. ..
cd..: command not found
dawood@DESKTOP-V4SDVD9:/home$ cd ..
dawood@DESKTOP-V4SDVD9:/home$ 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
dawood@DESKTOP-V4SDVD9:/home$ pwd
/
dawood@DESKTOP-V4SDVD9:/home$ cd -a
bash: cd: -a: invalid option
cd: usage: cd [-L|[-P [-e]] [-@]] [dir]
dawood@DESKTOP-V4SDVD9:/home$ 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
dawood@DESKTOP-V4SDVD9:/home$ pwd
/

```

Creating and Managing Files/Directories

Demonstration:

ls / # Root directory contents
ls -la # Long listing with hidden files
cd /home # Change directory
cd ~ # Home directory shortcut

cd - # Previous directory

```
dawood@DESKTOP-V4SDVD9:/$ cd -a
bash: cd: -a: invalid option
cd: usage: cd [-L|[-P [-e]] [-@]] [dir]
dawood@DESKTOP-V4SDVD9:/$ ls
bin          boot  etc    init  lib.usr-is-merged  lost+found  mnt  proc  run  sbin.usr-is-merged
bin.usr-is-merged  dev  home  lib  lib64              media      opt  root  sbin  snap
dawood@DESKTOP-V4SDVD9:/$ pwd
/
dawood@DESKTOP-V4SDVD9:/$ cd home/
dawood@DESKTOP-V4SDVD9:/home$ cd dawood/
dawood@DESKTOP-V4SDVD9:~$ mnt
Command 'mnt' not found, did you mean:
  command 'mgt' from deb mgt (2.31-9)
  command 'mn' from deb mininet (2.3.0-1ubuntu1)
  command 'mne' from deb python3-mne (1.3.0+dfsg-1)
  command 'ent' from deb ent (1.2debian-3)
  command 'fnt' from deb fnt (1.5-1)
  command 'mt' from deb cpio (2.14+dfsg-1)
  command 'mt' from deb mt-st (1.7-1)
  command 'mtt' from deb xawtv (3.107-1.1)
  command 'cnt' from deb open-infrastructure-compute-tools (20221223-3)
  command 'ant' from deb ant (1.10.14-1)
  command 'mbt' from deb mbt (3.6-3)
  command 'mft' from deb texlive-binaries (2023.20230311.66589-8build1)
Try: sudo apt install <deb name>
dawood@DESKTOP-V4SDVD9:~$ cd mnt
bash: cd: mnt: No such file or directory
dawood@DESKTOP-V4SDVD9:~$ cd / mnt
bash: cd: too many arguments
dawood@DESKTOP-V4SDVD9:~$ cd /mnt/
dawood@DESKTOP-V4SDVD9:/mnt$ ls
c  d  e  wsl
dawood@DESKTOP-V4SDVD9:/mnt$ cd d/
```

```

dawood@DESKTOP-V4SDVD9:/mnt$ cd /
dawood@DESKTOP-V4SDVD9:/mnt/d$ touch file.txt
dawood@DESKTOP-V4SDVD9:/mnt/d$ ls
"$RECYCLE.BIN"  DumpStack.log.tmp  NTU Study  OS_Assignment  'System Volume Information'  file.txt
dawood@DESKTOP-V4SDVD9:/mnt/d$ touch task.c
dawood@DESKTOP-V4SDVD9:/mnt/d$ code .
dawood@DESKTOP-V4SDVD9:/mnt/d$ cd ..
dawood@DESKTOP-V4SDVD9:/mnt$ cd ..
dawood@DESKTOP-V4SDVD9:/mnt$ mkdir linuxtutorial/
mkdir: cannot create directory 'linuxtutorial/': Permission denied
dawood@DESKTOP-V4SDVD9:/mnt$ mkdir linuxtutorial
mkdir: cannot create directory 'linuxtutorial': Permission denied
dawood@DESKTOP-V4SDVD9:/mnt$ 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
dawood@DESKTOP-V4SDVD9:/mnt$ cd
bin/      dev/      lib/      lost+found/  opt/      run/      snap/
bin.usr-is-merged/  etc/      lib.usr-is-merged/  media/      proc/      sbin/      srv/
boot/      home/     lib64/     mnt/        root/      sbin.usr-is-merged/  sys/
dawood@DESKTOP-V4SDVD9:/mnt$ cd
bin/      dev/      lib/      lost+found/  opt/      run/      snap/
bin.usr-is-merged/  etc/      lib.usr-is-merged/  media/      proc/      sbin/      srv/
boot/      home/     lib64/     mnt/        root/      sbin.usr-is-merged/  sys/
dawood@DESKTOP-V4SDVD9:/mnt$ cd /home/
dawood@DESKTOP-V4SDVD9:/home$ cd dawood/
.cache/   .landscape/  .ssh/      .vscode-server/  Lab01-hometask/
dawood@DESKTOP-V4SDVD9:/home$ cd dawood/
.cache/   .landscape/  .ssh/      .vscode-server/  Lab01-hometask/
dawood@DESKTOP-V4SDVD9:/home$

```

Commands to practice:

pwd # Present working directory
ls # List directory contents
ls -l # Long format
ls -la # Include hidden files
ls -lh # Human readable sizes
cd # Change directory
cd .. # Parent directory
cd ~ # Home directory
cd / # Root directory

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

● dawood@DESKTOP-V4SDVD9:~$ ls -l
Lab01-hometask
Operating-System-5th-1145
firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ ls -h
Lab01-hometask  Operating-System-5th-1145  firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ ls -l
total 8
drwxr-xr-x 2 dawood dawood 4096 Sep 25 23:49 Lab01-hometask
drwxr-xr-x 3 dawood dawood 4096 Sep 25 23:32 Operating-System-5th-1145
-rw-r--r-- 1 dawood dawood   0 Sep 26 16:11 firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ ls -lh
total 8.0K
drwxr-xr-x 2 dawood dawood 4.0K Sep 25 23:49 Lab01-hometask
drwxr-xr-x 3 dawood dawood 4.0K Sep 25 23:32 Operating-System-5th-1145
-rw-r--r-- 1 dawood dawood   0 Sep 26 16:11 firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ cd -
/home
⊗ dawood@DESKTOP-V4SDVD9:/home$ cd~
Command 'cd~' not found, did you mean:
  command 'cdb' from deb tinycdb (0.81-1)
  command 'cdi' from deb cdo (2.3.0-1)
  command 'cde' from deb cde (0.1+git9-g551e54d-1.2)
  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>
● dawood@DESKTOP-V4SDVD9:/home$ cd ~
● dawood@DESKTOP-V4SDVD9:~$ cd /
○ dawood@DESKTOP-V4SDVD9:/$
```

Commands to demonstrate:

mkdir mylab2 # Create directory

mkdir -p test/sub/dir # Create nested directories

touch file1.txt # Create empty file

touch file2.txt file3.txt # Multiple files

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
⊗ dawood@DESKTOP-V4SDVD9:/$ mkdir dawood
mkdir: cannot create directory 'dawood': Permission denied
● dawood@DESKTOP-V4SDVD9:/$ cd
● dawood@DESKTOP-V4SDVD9:~$ mkdir dawood
● dawood@DESKTOP-V4SDVD9:~$ ls
Lab01-hometask Operating-System-5th-1145 dawood firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ touch file.txt
● dawood@DESKTOP-V4SDVD9:~$ ls
Lab01-hometask Operating-System-5th-1145 dawood file.txt firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ touch file1.txt file2.txt
● dawood@DESKTOP-V4SDVD9:~$ ls
Lab01-hometask Operating-System-5th-1145 dawood file.txt file1.txt file2.txt firstfile.txt
○ dawood@DESKTOP-V4SDVD9:~$
```

`cp` hello.txt backup.txt # Copy file
`cp -r` mylab2 mylab2_backup # Copy directory recursively
`mv` backup.txt renamed.txt # Move/rename file
`rm` renamed.txt # Remove file
`rm -r` mylab2_backup # Remove directory

`rmdir` empty_directory # Remove empty directory

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
● dawood@DESKTOP-V4SDVD9:~$ ls
Lab01-hometask Operating-System-5th-1145 dawood file.txt file1.txt file2.txt firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ cp file.txt dawood/
● dawood@DESKTOP-V4SDVD9:~$ cd dawood/
● dawood@DESKTOP-V4SDVD9:~/dawood$ ls
file.txt
● dawood@DESKTOP-V4SDVD9:~/dawood$ cd ~
● dawood@DESKTOP-V4SDVD9:~$ rm file.txt
● dawood@DESKTOP-V4SDVD9:~$ ls
Lab01-hometask Operating-System-5th-1145 dawood file1.txt file2.txt firstfile.txt
⊗ dawood@DESKTOP-V4SDVD9:~$ rm file1.txt newfile.txt
rm: cannot remove 'newfile.txt': No such file or directory
⊗ dawood@DESKTOP-V4SDVD9:~$ mv file1.txt newfile.txt
mv: cannot stat 'file1.txt': No such file or directory
```

Commands to demonstrate:

`ls -l` # View permissions
`chmod 755` file.txt # Change permissions (numeric)
`chmod u+x` file.txt # Add execute permission for user
`chmod g-w` file.txt # Remove write permission for group

chown user:group file.txt # Change ownership (if applicable)

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

● dawood@DESKTOP-V4SDVD9:~$ pwd
/home/dawood
● dawood@DESKTOP-V4SDVD9:~$ ls -l
Lab01-hometask
Operating-System-5th-1145
dawood
file2.txt
firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ ls -l
total 12
drwxr-xr-x 2 dawood dawood 4096 Sep 25 23:49 Lab01-hometask
drwxr-xr-x 3 dawood dawood 4096 Sep 25 23:32 Operating-System-5th-1145
drwxr-xr-x 2 dawood dawood 4096 Sep 26 19:11 dawood
-rw-r--r-- 1 dawood dawood  0 Sep 26 19:09 file2.txt
-rw-r--r-- 1 dawood dawood  0 Sep 26 16:11 firstfile.txt
● dawood@DESKTOP-V4SDVD9:~$ sudo chmod 755 file2.txt
[sudo] password for dawood:
Sorry, try again.
[sudo] password for dawood:
Sorry, try again.
[sudo] password for dawood:
● dawood@DESKTOP-V4SDVD9:~$ ls -l
total 12
drwxr-xr-x 2 dawood dawood 4096 Sep 25 23:49 Lab01-hometask
drwxr-xr-x 3 dawood dawood 4096 Sep 25 23:32 Operating-System-5th-1145
drwxr-xr-x 2 dawood dawood 4096 Sep 26 19:11 dawood
-rwxr-xr-x 1 dawood dawood  0 Sep 26 19:09 file2.txt
-rw-r--r-- 1 dawood dawood  0 Sep 26 16:11 firstfile.txt
○ dawood@DESKTOP-V4SDVD9:~$
```