Question 1

ls

Definition:

ls lists files and directories in a folder.

Usage:

By default, ls lists the contents of the current directory. You can also specify a directory or file to list.

Formula

bash ls [options] [directory]

Examples

ls # lists files in current directory ls -l # lists files with detailed information (permissions, owner, size, date) ls /home # lists files in /home directory ls -a # lists all files including hidden files (starting with .)

ls is used for listing files and directories. By default, it lists the current directory if no directory is specified.

Pwd

Definition:

pwd stands for "print working directory." It shows the absolute path of the current working directory.

Usage

Use pwd to check our current location in the file system.

Formula

pwd

Examples

bash

pwd output might be: /home/username/labs to check current directory before listing its contents pwd ls

cd

Definition:

cd (change directory) is used to move between directories in the file system.

Usage:

we can navigate using absolute paths (full path from root) or relative paths (from our current location).

Formula:

cd [path-to-directory]

Examples

bash .Move to an absolute path cd /home/username/Documents .Move to a subdirectory inside the current directory cd Pictures .Move up to the parent directory cd .. . Move to the home directory cd ~

Question 2

Variable?

A variable is a name that stores a value, such as text, numbers, or other data, which can be used later in commands or scripts.

How to use a variable:

To use a variable, you assign it a value and reference it using $ before its name.

Environment variable:

An environment variable is a variable that affects the behavior of the shell or system and is available to all programs and processes started from that shell.

User-defined variable:

A user-defined variable is a variable created by the user to store information temporarily in the current session.

Root directory:

The root directory is the top-most directory in the Linux file system hierarchy, represented by /.

Parent directory:

The parent directory is the directory immediately above the current directory in the file system hierarchy.

Current working directory:

The current working directory is the directory you are presently "in" in the shell.

Absolute path:

An absolute path is the full path from the root directory to a file or folder.

Relative path:

A relative path specifies a file or directory relative to your current working directory.

Difference between "Your home directory" and "The home directory":

Your home directory: The personal directory for your user account (e.g., /home/username).

The home directory: The general location where all users' home directories are stored, usually /home.

Question 3

Terminal 1:

```
rap@cis106:~$ pwd
/home/rap
rap@cis106:~$ cd Downloads/
rap@cis106:~/Downloads$ pwd
/home/rap/Downloads
rap@cis106:~/Downloads$ cd ..
rap@cis106:~$ pwd
/home/rap
rap@cis106:~$ cd ../../
rap@cis106:/$ cd
rap@cis106:~$ cd -
/
rap@cis106:/$ pwd
/
rap@cis106:/$
```

Terminal 2 — left pane:

```
rap@cis106:~$ wget https://cis106.com/assets/practicels.tar.xz
--2025-10-31 09:15:48--  https://cis106.com/assets/practicels.tar.xz
Resolving cis106.com (cis106.com)... 185.199.108.153
Connecting to cis106.com (cis106.com)|185.199.108.153|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 2229212 (2.1M) [application/x-xz]
Saving to: 'practicels.tar.xz'

practicels.tar.xz   100%[===================>]   2.12M  --.-KB/s    in 0.1s

2025-10-31 09:15:48 (16.3 MB/s) - 'practicels.tar.xz' saved [2229212/2229212]

rap@cis106:~$ tar Jxf practicels.tar.xz
rap@cis106:~$ cd practicels/
rap@cis106:~/practicels$ ls
book.txt       history-debian.pdf  movie.mp4    song.mp3      tux-penguin.gif
countries.xml  homework.docx       people.csv   tux-nobg.png
rap@cis106:~/practicels$ ls -a
.              countries.xml       movie.mp4    tux-nobg.png
..             history-debian.pdf  people.csv   tux-penguin.gif
book.txt       homework.docx       song.mp3
rap@cis106:~/practicels$ ls -l
total 2932
-rw-rw-r-- 1 rap rap    1043 Feb 27  2022 book.txt
-rw-rw-r-- 1 rap rap   23972 Feb 27  2022 countries.xml
-rw-rw-r-- 1 rap rap  163057 Feb 27  2022 history-debian.pdf
-rw-rw-r-- 1 rap rap  111303 Feb 22  2022 homework.docx
-rw-rw-r-- 1 rap rap 1570024 Feb 27  2022 movie.mp4
-rw-rw-r-- 1 rap rap  284042 Feb 27  2022 people.csv
-rw-rw-r-- 1 rap rap  764176 Feb 27  2022 song.mp3
-rw-rw-r-- 1 rap rap   21314 Feb 27  2022 tux-nobg.png
-rw-rw-r-- 1 rap rap   44299 Jan 31  2020 tux-penguin.gif
rap@cis106:~/practicels$
```

Terminal 2 — right pane:

```
drwxrwxr-x 3 4.0K Oct 23 21:14 Scripts
drwx------ 3 4.0K Sep 26 22:54 snap
drwxrwxr-x 4 4.0K Oct 30 18:00 snapshots
drwxr-xr-x 2 4.0K Oct 30 09:16 student
drwxr-xr-x 2 4.0K Sep 25 23:15 Templates
drwxr-xr-x 2 4.0K Sep 25 23:15 Videos
drwxrwxr-x 2 4.0K Oct 30 12:30 WR5
-rwxrwxr-x 1 2.5K Sep 25 15:05 vscode.sh
-rw-rw-r-- 1   42 Oct 22 11:37 la4.script3.sh
rap@cis106:~$ ls -mr
WR5, vscode.sh, Videos, Templates,
student, snapshots, snap, Scripts,
Public, practicels.tar.xz, practicels,
Pictures, Music, marstenHouse,
lab5files.zip.1, lab5files.zip,
lab5files, la4.script3.sh,
essentials.sh.2, essentials.sh.1,
essentials.sh, Downloads, Documents,
Desktop, data, colors, cis106
rap@cis106:~$ ls -1x
cis106              colors
data                Desktop
Documents           Downloads
essentials.sh       essentials.sh.1
essentials.sh.2     la4.script3.sh
lab5files           lab5files.zip
lab5files.zip.1     marstenHouse
Music               Pictures
practicels          practicels.tar.xz
Public              Scripts
snap                snapshots
student             Templates
Videos              vscode.sh
WR5
rap@cis106:~$
```

```
rap@cis106:~/practicels$ pwd
/home/rap/practicels
rap@cis106:~/practicels$ cd
rap@cis106:~$ cd /
rap@cis106:/$ cd usr/share/themes
rap@cis106:/usr/share/themes$ cd ../../
rap@cis106:/usr$ ls -A ~
.bash_aliases    .Fonts          snap
.bash_history    .gitconfig      snapshots
.bash_logout     .gnupg          .ssh
.bashrc          la4.script3.sh  student
.cache           lab5files       .sudo_as_admin_successful
cis106           lab5files.zip   Templates
colors           lab5files.zip.1 .vboxclient-clipboard-tty2-control.pid
.config          .local          .vboxclient-clipboard-tty2-service.pid
data             marstenHouse    .vboxclient-draganddrop-tty2-control.pid
Desktop          .mozilla        .vboxclient-hostversion-tty2-control.pid
Documents        Music           .vboxclient-seamless-tty2-control.pid
.dotnet          Pictures        .vboxclient-vmsvga-session-tty2-control.pid
Downloads        .pki            .vboxclient-vmsvga-session-tty2-service.pid
essentials.sh    practicels      Videos
essentials.sh.1  practicels.tar.xz .vscode
essentials.sh.2  .profile        vscode.sh
.face            Public          .wget-hsts
.face.icon       Scripts         WR5
rap@cis106:/usr$
```

```
rap@cis106:~$ cd; ls -tX Trahman817/
ls: cannot access 'Trahman817/': No such file or directory
rap@cis106:~$ ls -lh ~
total 9.1M
drwxrwxr-x 8 rap rap 4.0K Oct 30 21:21 cis106
drwxrwxr-x 3 rap rap 4.0K Oct 30 18:03 colors
drwxrwxr-x 3 rap rap 4.0K Oct 30 18:05 data
drwxr-xr-x 2 rap rap 4.0K Sep 25 23:15 Desktop
drwxr-xr-x 3 rap rap 4.0K Oct 30 18:36 Documents
drwxr-xr-x 2 rap rap 4.0K Oct 30 18:49 Downloads
-rwxrwxr-x 1 rap rap 7.6K Sep 25 15:05 essentials.sh
-rw-rw-r-- 1 rap rap 7.6K Sep 25 15:05 essentials.sh.1
-rw-rw-r-- 1 rap rap 7.6K Sep 25 15:05 essentials.sh.2
-rw-rw-r-- 1 rap rap   42 Oct 22 11:37 la4.script3.sh
drwxrwxr-x 2 rap rap 4.0K Oct 30 09:26 lab5files
-rw-rw-r-- 1 rap rap 3.5M Oct 30 10:23 lab5files.zip
-rw-rw-r-- 1 rap rap 3.5M Oct 29 14:47 lab5files.zip.1
drwxrwxr-x 3 rap rap 4.0K Oct 30 10:01 marstenHouse
drwxr-xr-x 2 rap rap 4.0K Sep 25 23:15 Music
drwxr-xr-x 4 rap rap 4.0K Oct 13 18:06 Pictures
drwxrwxr-x 2 rap rap 4.0K Feb 27 2022 practicels
-rw-rw-r-- 1 rap rap 2.2M Oct 29 14:47 practicels.tar.xz
drwxr-xr-x 2 rap rap 4.0K Sep 25 23:15 Public
drwxrwxr-x 2 rap rap 4.0K Oct 23 21:14 Scripts
drwx------ 3 rap rap 4.0K Sep 26 22:54 snap
drwxrwxr-x 2 rap rap 4.0K Oct 30 18:00 snapshots
drwxrwxr-x 2 rap rap 4.0K Oct 30 09:16 student
drwxr-xr-x 2 rap rap 4.0K Sep 25 23:15 Templates
drwxr-xr-x 2 rap rap 4.0K Sep 25 23:15 Videos
-rwxrwxr-x 1 rap rap 2.5K Sep 25 15:05 vscode.sh
drwxrwxr-x 2 rap rap 4.0K Oct 30 12:30 WR5
rap@cis106:~$ ls -lgG -9:28:02 ~
ls: invalid option -- '9'
Try 'ls --help' for more information.
rap@cis106:~$
```



```
rap@cis106:~$ bash bash2.sh
The Current User: rap
The Current Shell: /bin/bash
The Current's User Home: /home/rap
The Path Var:
 /usr/local/bin:/usr/bin:/bin:/usr/local/games:/usr
/games:/snap/bin:/usr/bin
rap@cis106:~$
```

```bash
#!/bin/bash
echo "The Current User: $USER"
echo "The Current Shell: $SHELL"
echo "The Current's User Home: $HOME"
echo -e "The Path Var: \n $PATH"
```
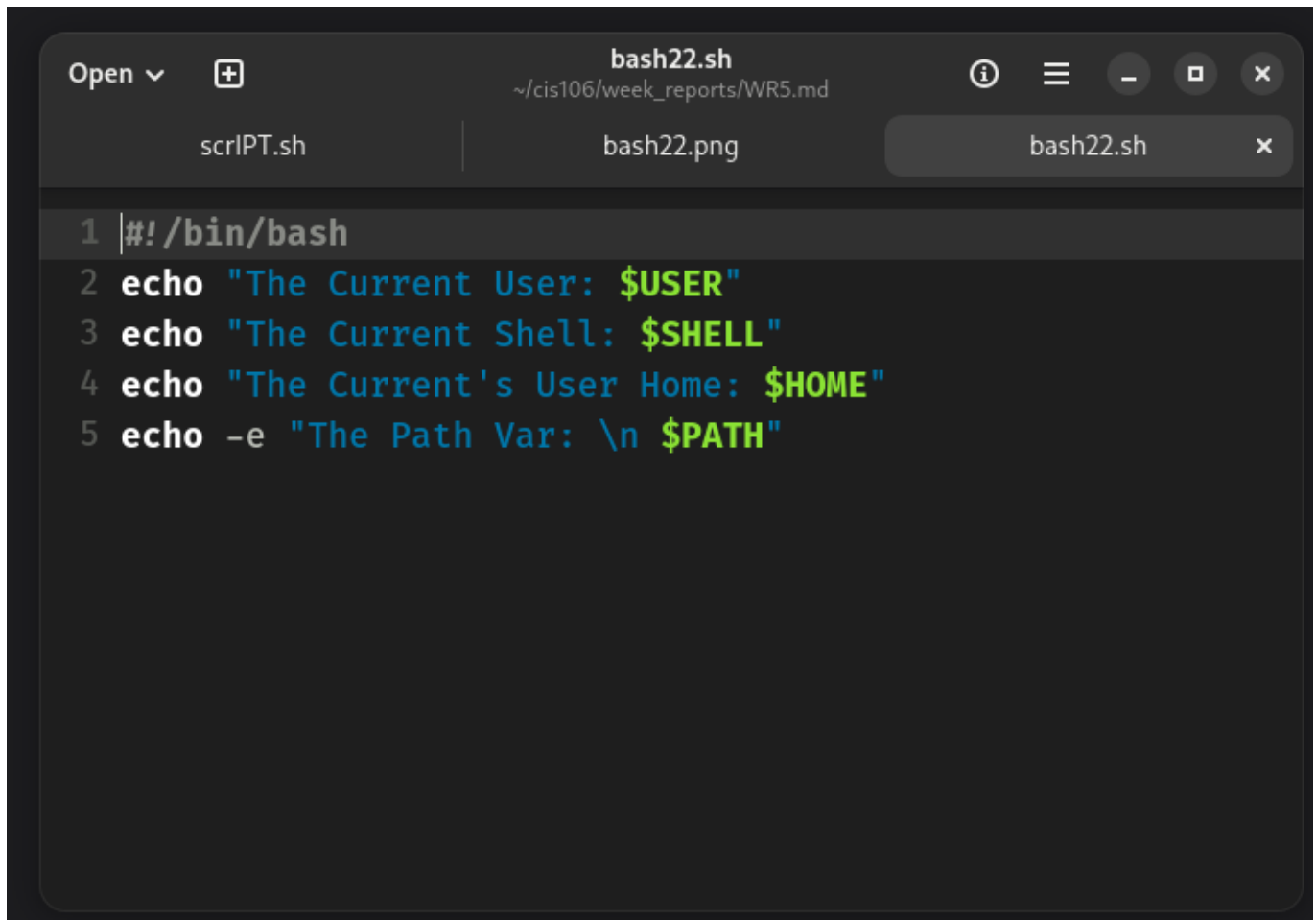


```
rap@cis106:~$ bash scrIPT.sh
        Users Information
        - - - - - -
        Name:    TR
        Age:     29
        Email:   TR@gmail.com
        Phone:   987-234-1234
rap@cis106:~$
```

```
Open v    ⊞              bash22.sh              ⓘ  ≡  ⚊  ⬛  ✕
                    ~/cis106/week_reports/WR5.md

      scrIPT.sh              bash22.png              bash22.sh        ✕

  1  #!/bin/bash
  2  echo "The Current User: $USER"
  3  echo "The Current Shell: $SHELL"
  4  echo "The Current's User Home: $HOME"
  5  echo -e "The Path Var: \n $PATH"
```

```
  1  #!/bin/bash
  2  # This is a copmment. This will not excute
  3  # Comments are added for humans to read
  4  # THey help debug code!
  5  # ─────────────────
  6  # Variables that store age, name, email, and phone number
  7  name="TR"
  8  age=29
  9  email="TR@gmail.com"
 10  phone="987-234-1234"
 11
 12  # Display the users info
 13  echo -e "\tUsers Information"
 14  echo -e "\t- - - - - -"
 15  echo -e "\tName: \t$name" #added a tab for presentation
 16  echo -e "\tAge: \t$age"
 17  echo -e "\tEmail: \t$email"
 18  echo -e "\tPhone: \t$phone"
```