

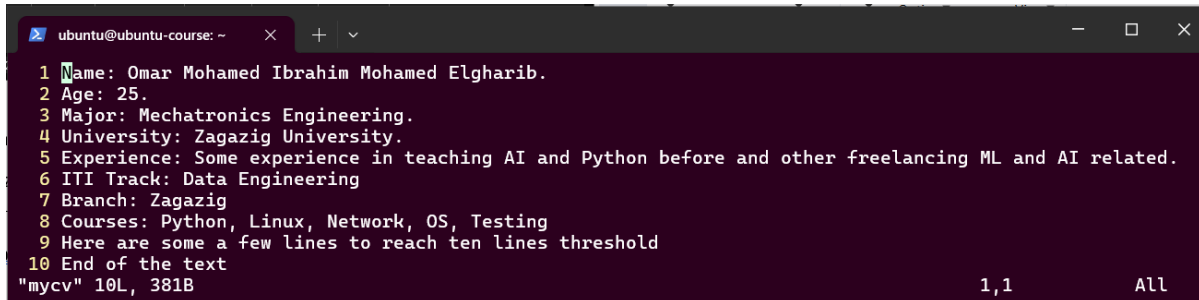
## Introduction to Linux and Bash Scripting

### Lab 3

Name: Omar Mohamed Ibrahim

Track: Data Engineer – Zagazig

- 
1. Using vi write your CV in the file mycv. Your CV should include your name, age, school, college, experience,..



```
ubuntu@ubuntu-course: ~  
1 Name: Omar Mohamed Ibrahim Mohamed Elgharib.  
2 Age: 25.  
3 Major: Mechatronics Engineering.  
4 University: Zagazig University.  
5 Experience: Some experience in teaching AI and Python before and other freelancing ML and AI related.  
6 ITI Track: Data Engineering  
7 Branch: Zagazig  
8 Courses: Python, Linux, Network, OS, Testing  
9 Here are some a few lines to reach ten lines threshold  
10 End of the text  
"mycv" 10L, 381B
```

- 
2. Open mycv file using vi command then: Without using arrows state how to:
    - a. Move the cursor down one line at time  
j in command mode.
    - b. Move the cursor up one line at time.  
k in command mode.
    - c. Search for word age  
/age
    - d. Step to line 5 (assuming that you are in line 1 and file is more than 5 lines)  
5 + shift + g (G) in command mode or :5 in extended command mode
    - e. Delete the line you are on and line 5.  
:1, 5d in extended command mode
    - f. How to step to the end of line and change to writing mode in one-step.  
shift + a (A)

### 3. List the available shells in your system.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ cat /etc/shells  
# /etc/shells: valid login shells  
/bin/sh  
/usr/bin/sh  
/bin/bash  
/usr/bin/bash  
/bin/rbash  
/usr/bin/rbash  
/usr/bin/dash  
/usr/bin/screen  
/usr/bin/tmux  
ubuntu@ubuntu-course:~$
```

### 4. List the environment variables in your current shell

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ printenv  
SHELL=/bin/bash  
PWD=/home/ubuntu  
LOGNAME=ubuntu  
HOME=/home/ubuntu  
LANG=en_US.UTF-8  
LS_COLORS=rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=40;33;01:cd=40;33;01:or=40;31;01:mi=00:su=37;  
41:sg=30;43:ca=00:tw=30;42:ow=34;42:st=37;44:ex=01;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;31:*.taz=01;31:  
*.lha=01;31:*.lz4=01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:*.t7z=01;31:*.zip=01;31:*.z=0  
1;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31:*.bz2=01;31:*.bz  
=01;31:*.tbz=01;31:*.tbz2=01;31:*.tz=01;31:*.deb=01;31:*.rpm=01;31:*.jar=01;31:*.war=01;31:*.ear=01;31:*.sar=01;31  
:*.rar=01;31:*.alz=01;31:*.ace=01;31:*.zoo=01;31:*.cpio=01;31:*.7z=01;31:*.rz=01;31:*.cab=01;31:*.wim=01;31:*.swm=0  
1;31:*.dwm=01;31:*.esd=01;31:*.avif=01;35:*.jpg=01;35:*.jpeg=01;35:*.mjpg=01;35:*.mjpeg=01;35:*.gif=01;35:*.bmp=0  
1;35:*.pbm=01;35:*.pgm=01;35:*.ppm=01;35:*.tga=01;35:*.xbm=01;35:*.xpm=01;35:*.tif=01;35:*.tiff=01;35:*.png=01;35:  
*.svg=01;35:*.svgz=01;35:*.mng=01;35:*.pcx=01;35:*.mov=01;35:*.mpg=01;35:*.mpeg=01;35:*.m2v=01;35:*.mkv=01;35:*.we  
bm=01;35:*.webp=01;35:*.ogm=01;35:*.mp4=01;35:*.m4v=01;35:*.mp4v=01;35:*.vob=01;35:*.qt=01;35:*.nuv=01;35:*.wmv=01  
;35:*.asf=01;35:*.rm=01;35:*.rmvb=01;35:*.flc=01;35:*.avi=01;35:*.fli=01;35:*.flv=01;35:*.gl=01;35:*.dl=01;35:*.xc  
f=01;35:*.xwd=01;35:*.yuv=01;35:*.cgm=01;35:*.emf=01;35:*.ogv=01;35:*.ogx=01;35:*.aac=00;36:*.au=00;36:*.flac=00;3  
6:*.m4a=00;36:*.mid=00;36:*.midi=00;36:*.mka=00;36:*.mp3=00;36:*.mpc=00;36:*.ogg=00;36:*.ra=00;36:*.wav=00;36:*.og  
a=00;36:*.opus=00;36:*.spx=00;36:*.xspf=00;36:*.~=00;90:*.#=00;90:*.bak=00;90:*.crdownload=00;90:*.dpgk-dist=00;90:*.  
.dpgk-new=00;90:*.dpgk-old=00;90:*.dpgk-tmp=00;90:*.old=00;90:*.orig=00;90:*.part=00;90:*.rej=00;90:*.rpmnew=00;90  
:*.rpmorig=00;90:*.rpmsave=00;90:*.swp=00;90:*.tmp=00;90:*.ucf-dist=00;90:*.ucf-new=00;90:*.ucf-old=00;90:  
LESSCLOSE=/usr/bin/lesspipe %s %s  
TERM=xterm-256color  
LESSOPEN=| /usr/bin/lesspipe %s  
USER=ubuntu  
SHLVL=1  
XDG_DATA_DIRS=/usr/local/share:/usr/share:/var/lib/snapd/desktop  
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin  
MAIL=/var/mail/ubuntu  
_=/usr/bin/printenv  
ubuntu@ubuntu-course:~$
```

## 5. What are the commands that list the value of a specific variable?

echo \$VARIABLE

---

## 6. Display your current shell name.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ echo $SHELL  
/bin/bash  
ubuntu@ubuntu-course:~$
```

## 7. State the initialization files of: sh, ksh, bash.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ cat /etc/profile  
# /etc/profile: system-wide .profile file for the Bourne shell (sh(1))  
# and Bourne compatible shells (bash(1), ksh(1), ash(1), ...).  
  
if [ "${PS1-}" ]; then  
  if [ "${BASH-}" ] && [ "$BASH" != "/bin/sh" ]; then  
    # The file bash.bashrc already sets the default PS1.  
    # PS1='\h:\w\$ '  
    if [ -f /etc/bash.bashrc ]; then  
      . /etc/bash.bashrc  
    fi  
  else  
    if [ "$(id -u)" -eq 0 ]; then  
      PS1='# '  
    else  
      PS1='$ '  
    fi  
  fi  
fi  
  
if [ -d /etc/profile.d ]; then  
  for i in /etc/profile.d/*.sh; do  
    if [ -r $i ]; then  
      . $i  
    fi  
  done  
unset i  
fi  
ubuntu@ubuntu-course:~$
```

After digging and doing some google searches, I found this

For bash

- Interactive login bash
  - /etc/profile → contains the system-wide config for login shells
  - Three files in order the first file it finds in this order:
    - ~/.bash\_profile
    - ~/.bash\_login

- `~/.profile` → My case for personal login shell config
  - As shown in the image above it will also load `etc/bash.basrc`
- Interactive non-login bash
  - `etc/bash.basrc`
  - `~/.bashrc`

To wrap things up if I add something in `~/.profile`, I'll see the modification only in **login shells** (open the first terminal after logging). On the other hand, if I add it in `~/.bashrc`, I'll see the change **every time I open a terminal**.

```
ubuntu@ubuntu-course: ~
# ~/.profile: executed by the command interpreter for login shells.
# This file is not read by bash(1), if ~/.bash_profile or ~/.bash_login
# exists.
# see /usr/share/doc/bash/examples/startup-files for examples.
# the files are located in the bash-doc package.

# the default umask is set in /etc/profile; for setting the umask
# for ssh logins, install and configure the libpam-umask package.
#umask 022
echo "This is an example for a login shell modification"
# if running bash
if [ -n "$BASH_VERSION" ]; then
    # include .bashrc if it exists
    if [ -f "$HOME/.bashrc" ]; then
        . "$HOME/.bashrc"
    fi
fi

# set PATH so it includes user's private bin if it exists
if [ -d "$HOME/bin" ] ; then
    PATH="$HOME/bin:$PATH"
fi

# set PATH so it includes user's private bin if it exists
if [ -d "$HOME/.local/bin" ] ; then
    PATH="$HOME/.local/bin:$PATH"
fi
~
"/home/ubuntu/.profile" 27L, 863B                               10,56          All
```

```
ubuntu@ubuntu-course: ~
ubuntu@ubuntu-course:~$ sudo vim ~/.profile
[sudo] password for ubuntu:
ubuntu@ubuntu-course:~$ sudo vim ~/.profile
ubuntu@ubuntu-course:~$ sudo vim ~/.profile
ubuntu@ubuntu-course:~$ su -
Password:
root@ubuntu-course:~# su - ubuntu
This is an example for a login shell modification
ubuntu@ubuntu-course:~$
```

8. Edit in your profile to display date at login and change your prompt permanently.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ su -  
Password:  
root@ubuntu-course:~# su - ubuntu  
Date now is Wed Apr 9 06:42:51 PM UTC 2025  
ubuntu@ubuntu-course:~$
```

9. Execute the following command:

`echo \` then press enter

What is the purpose of `\` ?

Notice the prompt `>` what is that? and how can you change it from `>` to `:`?

It takes us into second prompt to start writing

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ echo \  
> "just a random text"  
just a random text  
ubuntu@ubuntu-course:~$ vim ~/.bashrc  
ubuntu@ubuntu-course:~$ source ~/.bashrc  
ubuntu@ubuntu-course:~$ echo \  
→ "just a random text but with an arrow pointing"  
just a random text but with an arrow pointing  
ubuntu@ubuntu-course:~$
```

10. Create a Bash shell alias named `ls` for the `"ls -l"` command

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ alias ls='ls -l'  
ubuntu@ubuntu-course:~$ ls .  
total 40  
-rw-rw-r-- 1 ubuntu ubuntu 37 Apr 6 19:17 colors.txt  
-rw-rw-r-- 1 ubuntu ubuntu 100 Apr 8 18:08 errfile  
-rw-rw-r-- 1 ubuntu ubuntu 0 Apr 8 18:10 errfile2  
-rw-rw-r-- 1 ubuntu ubuntu 35 Apr 6 19:18 morecolors.txt  
-rw-rw-r-- 1 ubuntu ubuntu 381 Apr 9 10:33 mycv  
-rw-rw-r-- 1 ubuntu ubuntu 50 Apr 8 18:01 myfile  
-rw-rw-r-- 1 ubuntu ubuntu 86 Apr 8 18:10 myfile2  
-rw-r--r-- 1 root root 1825 Apr 7 11:46 oldpasswd  
-rw-r--r-- 1 ubuntu ubuntu 9804 Apr 6 08:01 sudo_logsrvd.conf  
ubuntu@ubuntu-course:~$
```

11. Question 15 from lab2: Change your default permissions to be no permission to everyone then create a directory and a file to verify.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ touch file1  
ubuntu@ubuntu-course:~$ ls -l  
total 40  
-rw-rw-r-- 1 ubuntu ubuntu 37 Apr 6 19:17 colors.txt  
-rw-rw-r-- 1 ubuntu ubuntu 100 Apr 8 18:08 errfile  
-rw-rw-r-- 1 ubuntu ubuntu 0 Apr 8 18:10 errfile2  
----- 1 ubuntu ubuntu 0 Apr 9 19:03 file1  
-rw-rw-r-- 1 ubuntu ubuntu 35 Apr 6 19:18 morecolors.txt  
-rw-rw-r-- 1 ubuntu ubuntu 381 Apr 9 10:33 mycv  
-rw-rw-r-- 1 ubuntu ubuntu 50 Apr 8 18:01 myfile  
-rw-rw-r-- 1 ubuntu ubuntu 86 Apr 8 18:10 myfile2  
-rw-r--r-- 1 root root 1825 Apr 7 11:46 oldpasswd  
-rw-r--r-- 1 ubuntu ubuntu 9804 Apr 6 08:01 sudo_logsrvd.conf  
ubuntu@ubuntu-course:~$
```

```
ubuntu@ubuntu-course:~$ mkdir dir1  
ubuntu@ubuntu-course:~$ ls -l  
total 44  
-rw-rw-r-- 1 ubuntu ubuntu 37 Apr 6 19:17 colors.txt  
d----- 2 ubuntu ubuntu 4096 Apr 9 19:04 dir1  
-rw-rw-r-- 1 ubuntu ubuntu 100 Apr 8 18:08 errfile  
-rw-rw-r-- 1 ubuntu ubuntu 0 Apr 8 18:10 errfile2  
----- 1 ubuntu ubuntu 0 Apr 9 19:03 file1  
-rw-rw-r-- 1 ubuntu ubuntu 35 Apr 6 19:18 morecolors.txt  
-rw-rw-r-- 1 ubuntu ubuntu 381 Apr 9 10:33 mycv  
-rw-rw-r-- 1 ubuntu ubuntu 50 Apr 8 18:01 myfile  
-rw-rw-r-- 1 ubuntu ubuntu 86 Apr 8 18:10 myfile2  
-rw-r--r-- 1 root root 1825 Apr 7 11:46 oldpasswd  
-rw-r--r-- 1 ubuntu ubuntu 9804 Apr 6 08:01 sudo_logsrvd.conf  
ubuntu@ubuntu-course:~$
```