

SYSTEM PROJECT

Installation guide



1 ING 01 :

Ines BOUKHRIS

Nour EL KAHLA

2022/2023

USER GUIDE

1-Installing GNU Compiler Collection (GCC):

- To compile our shell and create an executable program we need to install GCC "GNU Compiler Collection". Which is a collection of compilers for various programming languages, including C, C++.

```
ines@ubuntu:~$ sudo apt-get install gcc
Reading package lists... Done
Building dependency tree
Reading state information... Done
gcc is already the newest version (4:9.3.0-1ubuntu2).
0 upgraded, 0 newly installed, 0 to remove and 125 not upgraded.
```

2-Installing make :

- We use make to automatically build our shell program. In other words, our makefile contains a set of rules, to determine how to build our shell.

```
nour@nour-virtual-machine:~/project$ sudo apt install make
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  build-essential
```

3-Installing gedit:

- We used the text editor gedit which is often included as the default text editor in many Linux distributions, and is known for its simplicity and ease of use.

```
nour@nour-virtual-machine:~/project$ sudo apt install gedit
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
gedit is already the newest version (41.0-2).
```

4-Permissions :

- Before running the program we need to give groups and any person access to our project to read and execute only, but for the user admin he can read/write and execute

```
ines@ubuntu:~$ ls
batchfile.sh  Desktop  Documents  Downloads  makefile  Music  Pictures  Public  shell.c  Templates  version.c  Videos
ines@ubuntu:~$ chmod 755 shell.c
ines@ubuntu:~$ chmod 755 batchfile.sh
ines@ubuntu:~$ chmod 755 makefile
ines@ubuntu:~$ ls -l
total 72
-rwxr-xr-x 1 ines ines 29 Jan 19 08:48 batchfile.sh
drwxr-xr-x 2 ines ines 4096 Jan 18 15:07 Desktop
drwxr-xr-x 2 ines ines 4096 Jan 18 15:07 Documents
drwxr-xr-x 2 ines ines 4096 Jan 18 15:07 Downloads
-rwxr-xr-x 1 ines ines 266 Jan 19 09:25 makefile
drwxr-xr-x 2 ines ines 4096 Jan 18 15:07 Music
drwxr-xr-x 2 ines ines 4096 Jan 18 15:07 Pictures
drwxr-xr-x 2 ines ines 4096 Jan 18 15:07 Public
-rwxr-xr-x 1 ines ines 12556 Jan 19 09:45 shell.c
drwxr-xr-x 2 ines ines 4096 Jan 18 15:07 Templates
-rw-rw-r-- 1 ines ines 12556 Jan 19 08:38 version.c
drwxr-xr-x 2 ines ines 4096 Jan 18 15:07 Videos
```

Execution of the project

1- Makefile content :

```
1 interactive: shelll
2 batch: myshell
3
4 shelll: shell.o
5     gcc shell.o -o shelll
6     ./shelll
7
8 myshell: shell.o
9     gcc shell.o -o myshell
10    ./myshell batchfile.sh
11
12 shell.o: shell.c
13     gcc -c shell.c
14
15 cleanI:
16     rm -rf *o shelll
17
18 cleanB:
19     rm -rf *o myshell
```

- The purpose of this makefile is building and executing shell programs called "shelll" and "myshell". The makefile contains four targets: "shelll", "myshell", "shell.o", and "cleanI".
- The "**shell**" target is used to build the "shelll" executable by compiling the "shell.o" object file and linking it with the gcc compiler. The "./shelll" command is then used to run the "shelll" executable.
- The "**myshell**" target is similar to the "shelll" target, but it is commented out. This target is used to build the "myshell" executable and run a specific batch file called "batchfile.sh".

- The "**shell.o**" target is used to build the "shell.o" object file by compiling the "shell.c" source file with the gcc compiler.
- The "**cleanI**" target is used to remove all object files and the "shell" executable.
- The "**cleanB**" target is similar to the "cleanI" target, but it is commented out and removes all object files and executable files and the "myshell" executable.

2- Executing in Interactive mode :

```
ines@ubuntu:~$ make interactive
gcc -c shell.c
gcc shell.o -o shelll
./shelll
Batch file not provided
Running on interactive mode

*****
WELCOME ines

-TO OUR ADVANCED SHELL-
*****

/home/ines%exit
ines@ubuntu:~$
```

→ Delete object file and executable file

```
ines@ubuntu:~$ ls
batchfile.sh  Downloads  myshell  shell.c  Templates  Videos
Desktop      makefile  Pictures  shelll   version
Documents    Music     Public   shell.o  version.c
ines@ubuntu:~$ make cleanI
rm -rf *o shelll
ines@ubuntu:~$ ls
batchfile.sh  Downloads  myshell  shell.c  version.c
Desktop      makefile  Pictures  Templates  Videos
Documents    Music     Public   version
ines@ubuntu:~$
```

Execution of the project

→ Simple Execution

```
ines@ubuntu:~$ gcc -c shell.c
ines@ubuntu:~$ gcc shell.o -o shell
ines@ubuntu:~$ ./shell
Batch file not provided
Running on interactive mode

*****
WELCOME ines

-TO OUR ADVANCED SHELL-
*****

/home/ines%exit
ines@ubuntu:~$
```

3- Executing in batch mode :

```
nour@nour-virtual-machine:~$ make batch
gcc -c shell.c
gcc shell.o -o myshell
./myshell batchfile.sh
ls
batchfile.sh  Documents  makefile  myshell  project  shell.c  Videos
Desktop      Downloads  Music     Pictures  Public   shell.o
touch fichfinale
touch fichfinale2
ls | wc
      15      15     134
ls > fichfinale2
cat fichfinale2 ; echo bonjour
batchfile.sh
Desktop
Documents
Downloads
fichfinale
fichfinale2
makefile
Music
myshell
Pictures
project
Public
shell.c
shell.o
Videos
bonjour
wc -l < fichfinale2
15
```

→ Delete object file and executable file

```
nour@nour-virtual-machine:~$ ls
batchfile.sh  Downloads  makefile  Pictures  shell.c
Desktop      fichfinale  Music     project   shell.o
Documents    fichfinale2 myshell    Public    Videos
nour@nour-virtual-machine:~$ make cleanB && ls
rm -rf *o myshell
batchfile.sh  Documents  fichfinale  makefile  Pictures  Public  Videos
Desktop      Downloads  fichfinale2  Music     project   shell.c
nour@nour-virtual-machine:~$
```

```
nour@nour-virtual-machine:~$ ./shell batchfile.sh
ls
batchfile.sh  Documents  Music     project  shell  shell.o
Desktop      Downloads  Pictures  Public   shell.c  Videos
touch fichfinale
touch fichfinale2
ls | wc
      14      14     123
ls > fichfinale2
cat fichfinale2 ; echo bonjour
batchfile.sh
Desktop
Documents
Downloads
fichfinale
fichfinale2
Music
Pictures
project
Public
shell
shell.c
shell.o
Videos
bonjour
wc -l < fichfinale2
14
nour@nour-virtual-machine:~$
```

→ Simple Execution