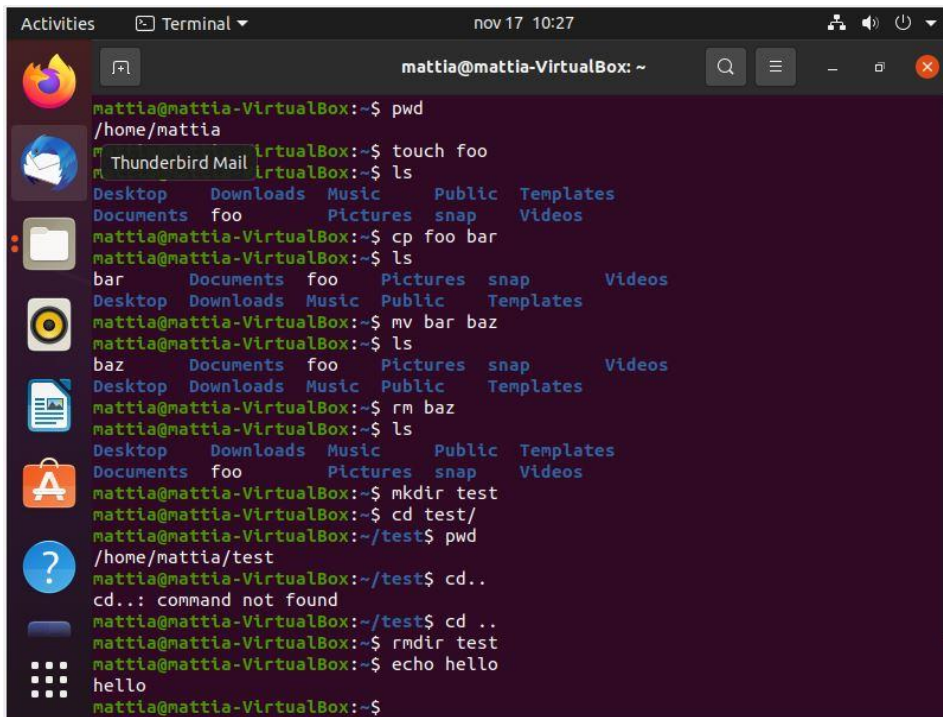
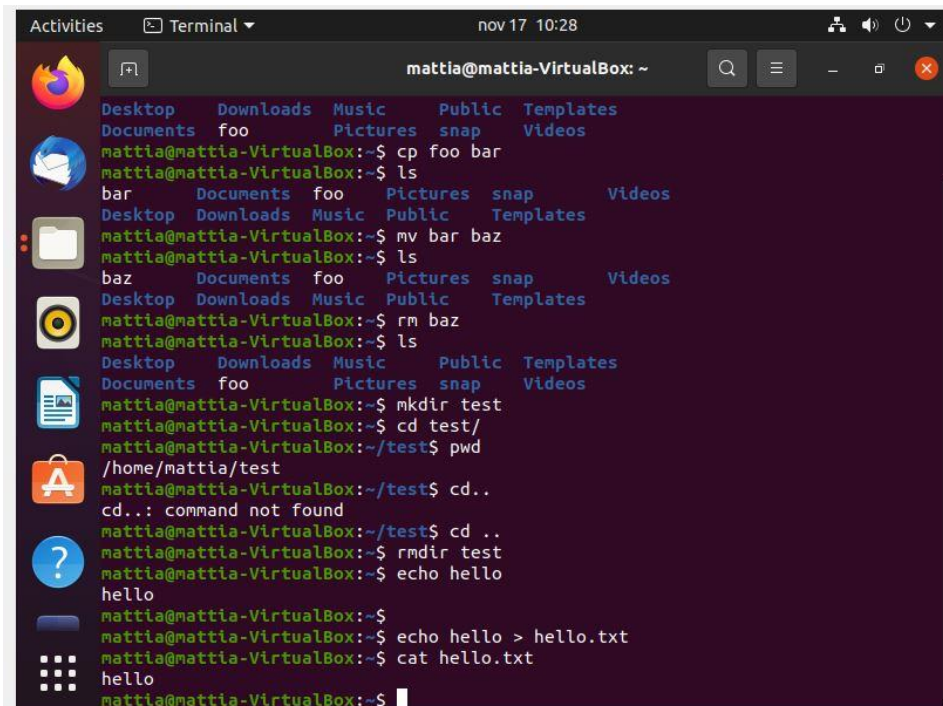


Lab 1 – SO – Iojica Mattia 244



A terminal window titled "mattia@mattia-VirtualBox: ~" with a search icon, menu icon, and window controls. The terminal shows the following commands and output:

```
mattia@mattia-VirtualBox:~$ pwd
/home/mattia
mattia@mattia-VirtualBox:~$ touch foo
mattia@mattia-VirtualBox:~$ ls
Desktop  Downloads  Music      Public    Templates
Documents foo         Pictures   snap      Videos
mattia@mattia-VirtualBox:~$ cp foo bar
mattia@mattia-VirtualBox:~$ ls
bar      Documents  foo        Pictures  snap      Videos
Desktop  Downloads  Music      Public    Templates
mattia@mattia-VirtualBox:~$ mv bar baz
mattia@mattia-VirtualBox:~$ ls
baz      Documents  foo        Pictures  snap      Videos
Desktop  Downloads  Music      Public    Templates
mattia@mattia-VirtualBox:~$ rm baz
mattia@mattia-VirtualBox:~$ ls
Desktop  Downloads  Music      Public    Templates
Documents foo         Pictures   snap      Videos
mattia@mattia-VirtualBox:~$ mkdir test
mattia@mattia-VirtualBox:~$ cd test/
mattia@mattia-VirtualBox:~/test$ pwd
/home/mattia/test
mattia@mattia-VirtualBox:~/test$ cd..
cd..: command not found
mattia@mattia-VirtualBox:~/test$ cd ..
mattia@mattia-VirtualBox:~$ rmdir test
mattia@mattia-VirtualBox:~$ echo hello
hello
mattia@mattia-VirtualBox:~$
```



A terminal window titled "mattia@mattia-VirtualBox: ~" with a search icon, menu icon, and window controls. The terminal shows the following commands and output:

```
Desktop  Downloads  Music      Public    Templates
Documents foo         Pictures   snap      Videos
mattia@mattia-VirtualBox:~$ cp foo bar
mattia@mattia-VirtualBox:~$ ls
bar      Documents  foo        Pictures  snap      Videos
Desktop  Downloads  Music      Public    Templates
mattia@mattia-VirtualBox:~$ mv bar baz
mattia@mattia-VirtualBox:~$ ls
baz      Documents  foo        Pictures  snap      Videos
Desktop  Downloads  Music      Public    Templates
mattia@mattia-VirtualBox:~$ rm baz
mattia@mattia-VirtualBox:~$ ls
Desktop  Downloads  Music      Public    Templates
Documents foo         Pictures   snap      Videos
mattia@mattia-VirtualBox:~$ mkdir test
mattia@mattia-VirtualBox:~$ cd test/
mattia@mattia-VirtualBox:~/test$ pwd
/home/mattia/test
mattia@mattia-VirtualBox:~/test$ cd..
cd..: command not found
mattia@mattia-VirtualBox:~/test$ cd ..
mattia@mattia-VirtualBox:~$ rmdir test
mattia@mattia-VirtualBox:~$ echo hello
hello
mattia@mattia-VirtualBox:~$
mattia@mattia-VirtualBox:~$ echo hello > hello.txt
mattia@mattia-VirtualBox:~$ cat hello.txt
hello
mattia@mattia-VirtualBox:~$
```

```
Activities Terminal nov 17 10:59
mattia@mattia-VirtualBox: ~/Documents

mattia@mattia-VirtualBox:~/Documents$ gcc helloworld.c -o hello
mattia@mattia-VirtualBox:~/Documents$ ./hello
Hello, World!
mattia@mattia-VirtualBox:~/Documents$ strace ./hello
execve("./hello", ["/.hello"], 0x7ffecf77cb50 /* 58 vars */) = 0
brk(NULL) = 0x55c36b3c4000
arch_prctl(0x3001 /* ARCH_??? */, 0x7ffc189e5090) = -1 EINVAL (Invalid argument)
access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=67170, ...}) = 0
mmap(NULL, 67170, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f955f304000
close(3) = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\360q\2\0\0\0\0"... , 8
32) = 832
pread64(3, "\6\0\0\0\4\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"... ,
784, 64) = 784
pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0",
32, 848) = 32
pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10
\204\276X>\263"... , 68, 880) = 68
fstat(3, {st_mode=S_IFREG|0755, st_size=2029224, ...}) = 0
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7f
955f302000
pread64(3, "\6\0\0\0\4\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"... ,
784, 64) = 784
pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0",
32, 848) = 32
```

```
Activities Terminal nov 17 11:01
mattia@mattia-VirtualBox: ~/Documents

mattia@mattia-VirtualBox:~/Documents$ ldd ./hello
linux-vdso.so.1 (0x00007ffd879a6000)
libc.so.6 => /lib/x86_64-linux-gnu/libc.so.6 (0x00007f071ffdf000)
/lib64/ld-linux-x86-64.so.2 (0x00007f07201e9000)
mattia@mattia-VirtualBox:~/Documents$ ./hello
Hello, World!
mattia@mattia-VirtualBox:~/Documents$ nm ./hello
0000000000004010 B __bss_start
0000000000004010 b completed.8060
w __cxa_finalize@@GLIBC_2.2.5
0000000000004000 D __data_start
0000000000004000 W data_start
0000000000001090 t deregister_tm_clones
0000000000001100 t __do_global_dtors_aux
0000000000003dc0 d __do_global_dtors_aux_fini_array_entry
0000000000004008 D __dso_handle
0000000000003dc8 d _DYNAMIC
0000000000004010 D _edata
0000000000004018 B _end
00000000000011e8 T _fini
0000000000001140 t frame_dummy
0000000000003db8 d __frame_dummy_init_array_entry
000000000000215c r __FRAME_END__
0000000000003fb8 d _GLOBAL_OFFSET_TABLE_
w __gmon_start__
0000000000002014 r __GNU_EH_FRAME_HDR
0000000000001000 t _init
0000000000003dc0 d __init_array_end
0000000000003db8 d __init_array_start
```

```
Activities Terminal nov 17 11:04
mattia@mattia-VirtualBox: ~/Documents

mattia@mattia-VirtualBox:~/Documents$ gcc -g -O0 helloworld.c -o hello
mattia@mattia-VirtualBox:~/Documents$ gdb ./hello
GNU gdb (Ubuntu 9.2-0ubuntu1~20.04) 9.2
Copyright (C) 2020 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
Type "show copying" and "show warranty" for details.
This GDB was configured as "x86_64-linux-gnu".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
<http://www.gnu.org/software/gdb/documentation/>.

For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from ./hello...
(gdb) n
The program is not being run.
(gdb) b main
Breakpoint 1 at 0x1149: file helloworld.c, line 4.
(gdb) r
Starting program: /home/mattia/Documents/hello

Breakpoint 1, main () at helloworld.c:4
4      {
(gdb) n
5      printf("Hello, World!\n");
```

```
Activities Terminal nov 17 11:04
mattia@mattia-VirtualBox: ~/Documents

For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from ./hello...
(gdb) n
The program is not being run.
(gdb) b main
Breakpoint 1 at 0x1149: file helloworld.c, line 4.
(gdb) r
Starting program: /home/mattia/Documents/hello

Breakpoint 1, main () at helloworld.c:4
4      {
(gdb) n
5      printf("Hello, World!\n");
(gdb) n
Hello, World!
6      return 0;
(gdb) n
7      }
(gdb) n
__libc_start_main (main=0x55555555149 <main>, argc=1, argv=0x7ffffffdfdc8,
init=<optimized out>, fini=<optimized out>, rtdl_fini=<optimized out>,
stack_end=0x7ffffffdfdb8) at ../csu/libc-start.c:342
342  ../csu/libc-start.c: No such file or directory.
(gdb) n
[Inferior 1 (process 10849) exited normally]
(gdb) q
mattia@mattia-VirtualBox:~/Documents$
```