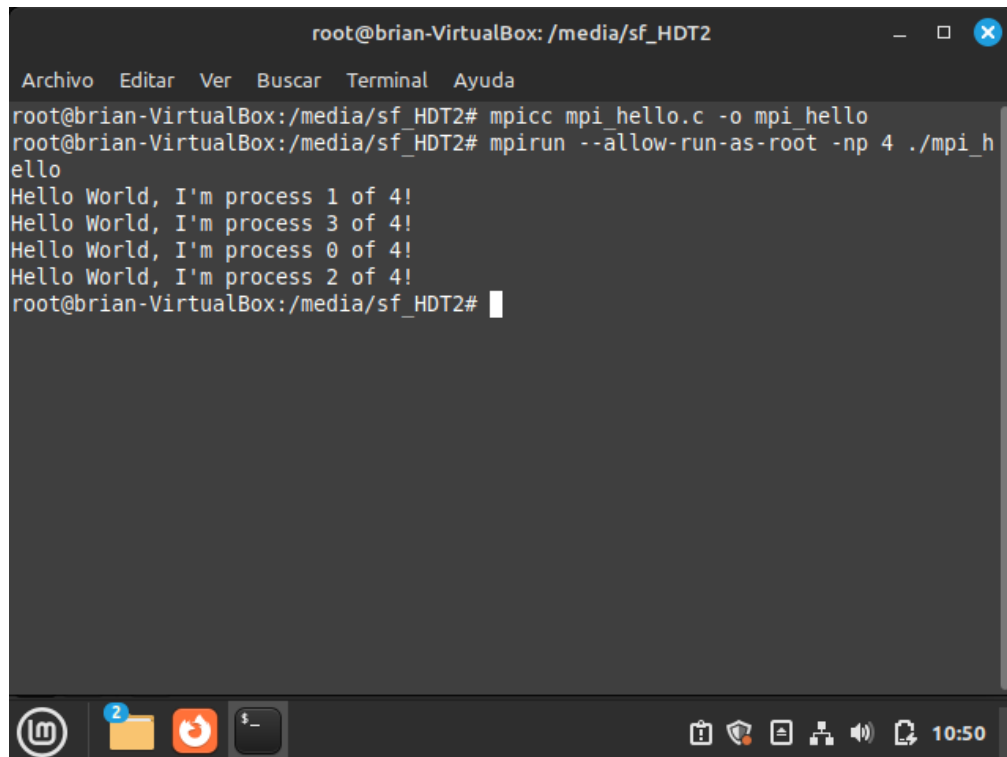


**Ejercicio 1 (20 puntos)**



```
root@brian-VirtualBox: /media/sf_HDT2
Archivo  Editar  Ver  Buscar  Terminal  Ayuda
root@brian-VirtualBox:/media/sf_HDT2# mpicc mpi_hello.c -o mpi_hello
root@brian-VirtualBox:/media/sf_HDT2# mpirun --allow-run-as-root -np 4 ./mpi_h
ello
Hello World, I'm process 1 of 4!
Hello World, I'm process 3 of 4!
Hello World, I'm process 0 of 4!
Hello World, I'm process 2 of 4!
root@brian-VirtualBox:/media/sf_HDT2#
```

The screenshot shows a terminal window titled 'root@brian-VirtualBox: /media/sf\_HDT2'. The window has a menu bar with 'Archivo', 'Editar', 'Ver', 'Buscar', 'Terminal', and 'Ayuda'. The terminal content shows the user compiling 'mpi\_hello.c' to 'mpi\_hello' using 'mpicc', then running it with 'mpirun --allow-run-as-root -np 4 ./mpi\_hello'. The output consists of four lines: 'Hello World, I'm process 1 of 4!', 'Hello World, I'm process 3 of 4!', 'Hello World, I'm process 0 of 4!', and 'Hello World, I'm process 2 of 4!'. The terminal window is part of a desktop environment with a taskbar at the bottom showing icons for a terminal, a folder, a terminal icon, and a terminal icon, along with system status icons and the time '10:50'.

### Ejercicio 2 (40 puntos)

```
root@brian-VirtualBox: /media/sf_HDT2
Archivo Editar Ver Buscar Terminal Ayuda
root@brian-VirtualBox:/media/sf_HDT2# mpicc mpi_hello_2.c -o mpi_hello_2
root@brian-VirtualBox:/media/sf_HDT2# mpirun --allow-run-as-root -np 4 ./mpi_h
ello_2
Hi, I'm process 0 of 4 and I'm receiving!
Greetings process 0, I'm process 1 of 4!
Greetings process 0, I'm process 2 of 4!
Hi, I'm process 1 of 4 and I'm sending a message to 0!
Hi, I'm process 2 of 4 and I'm sending a message to 0!
Hi, I'm process 3 of 4 and I'm sending a message to 0!
Greetings process 0, I'm process 3 of 4!
root@brian-VirtualBox:/media/sf_HDT2#
```

### Ejercicio 3 (40 puntos)

```
root@brian-VirtualBox: /media/sf_HDT2
Archivo Editar Ver Buscar Terminal Ayuda
root@brian-VirtualBox:/media/sf_HDT2# mpicc mpi_hello_3.c -o mpi_hello_3
root@brian-VirtualBox:/media/sf_HDT2# mpirun --allow-run-as-root -np 4 ./mpi_h
ello_3
Hi, I'm process 2 of 4 and I'm sending!
Hi, I'm process 0 of 4 and I'm receiving!
Hi, I'm process 3 of 4 and I'm sending!
Sending message from process 1 of 4 to process 0!
Hi, I'm process 0 of 4 and I'm sending a response to 1!
Hi, I'm process 1 of 4 and I'm sending!
Sending message from process 2 of 4 to process 0!
Hi, I'm process 0 of 4 and I'm sending a response to 2!
Sending message from process 3 of 4 to process 0!
Hi, I'm process 0 of 4 and I'm sending a response to 3!
Received response from process 0: Sending response from process 0 to process 3
!
Received response from process 0: Sending response from process 0 to process 1
!
Received response from process 0: Sending response from process 0 to process 2
!
root@brian-VirtualBox:/media/sf_HDT2#
```