



UNIVERSIDADE FEDERAL DE
UBERLÂNDIA FACULDADE DE
ENGENHARIA MECÂNICA
ENGENHARIA MECATRÔNICA



**Sistemas Embarcados II / Sistemas Digitais para
Mecatrônica**

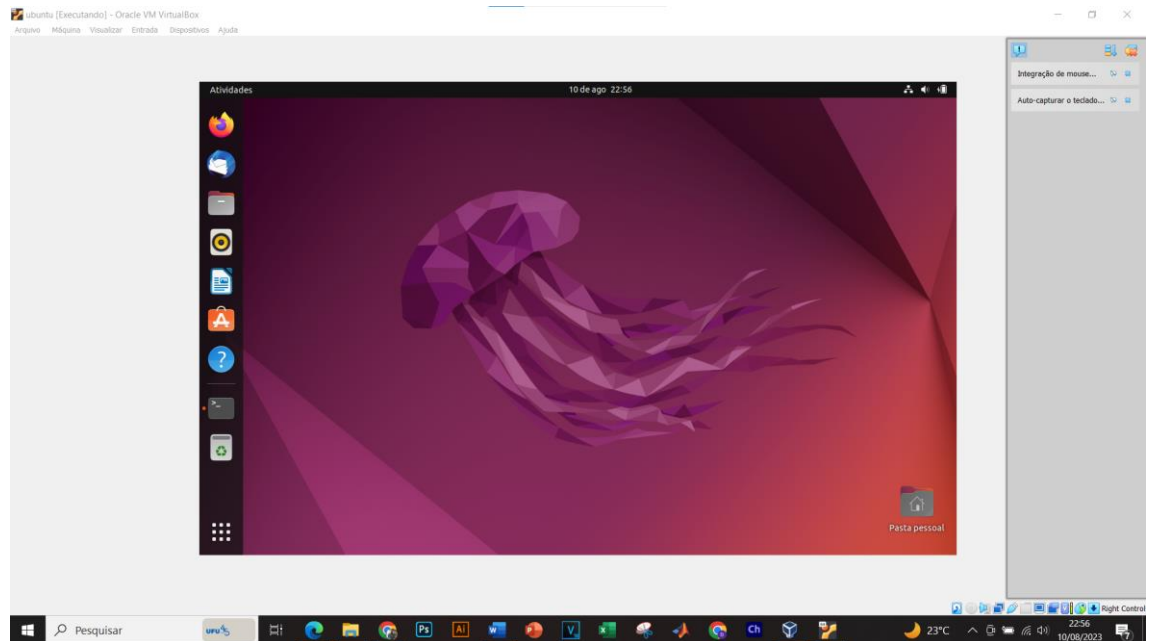
SEMANA 01.B – UTILIZAÇÃO DO LINUX

LUIZ CARLOS FERREIRA PINTO FILHO – 11821EMT003

UBERLÂNDIA

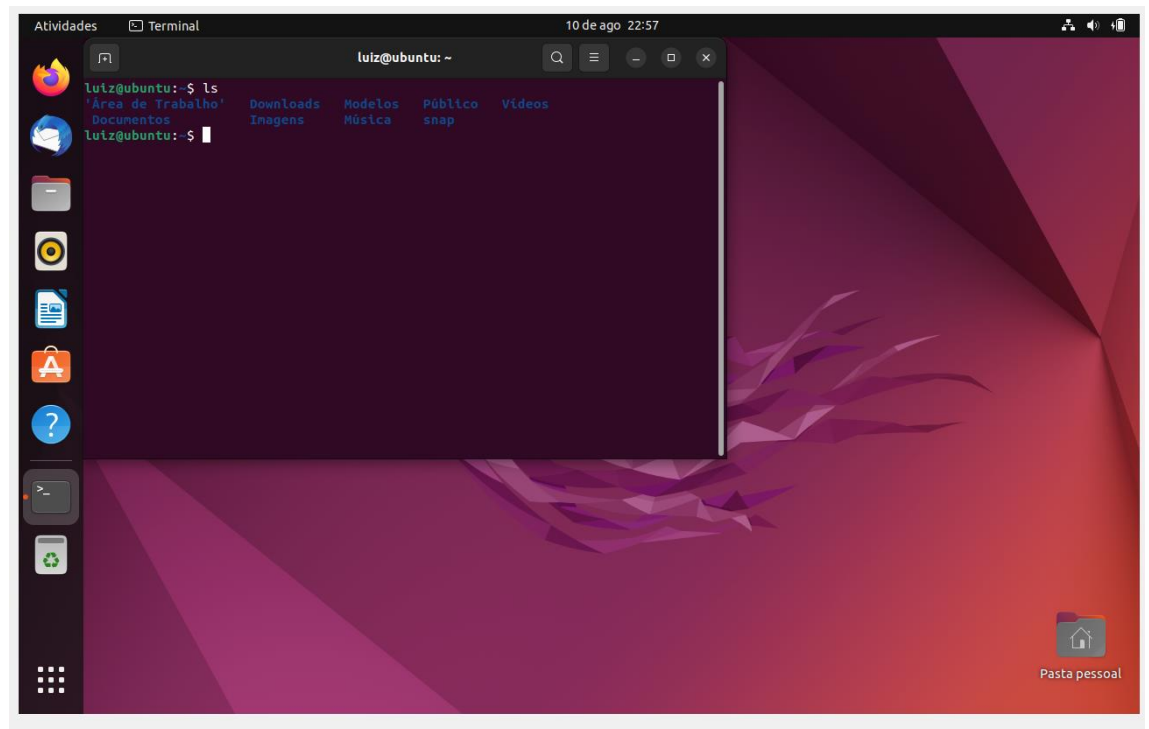
2023

1. Instalar e configurar o Linux em uma máquina virtual (Virtual Box) ou nativamente instalada. Defina o usuário do sistema como o seu primeiro nome, deixe um espaço de (pelo menos) 70 GB para o HD e 2.5 GB de RAM.

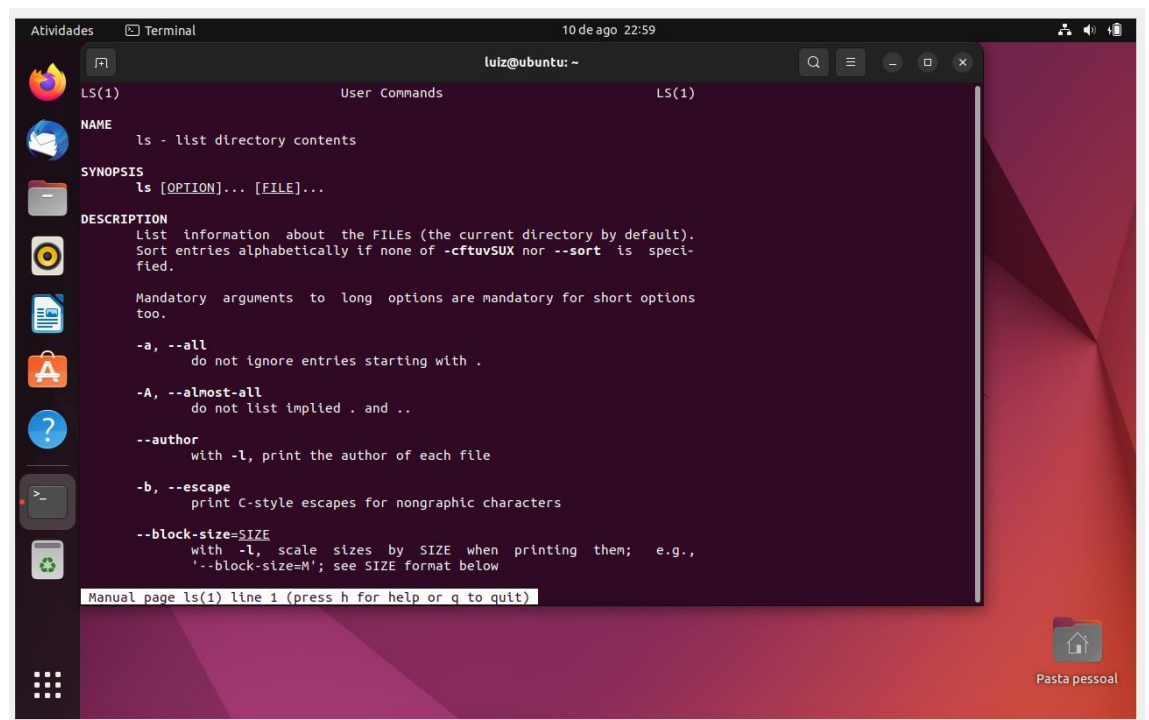


2. Utilizando os tutoriais abaixo, apresente um comentário de até duas linhas sobre a função do comando e tire um printscreen da tela do seu sistema com um exemplo de uso no seu sistema.

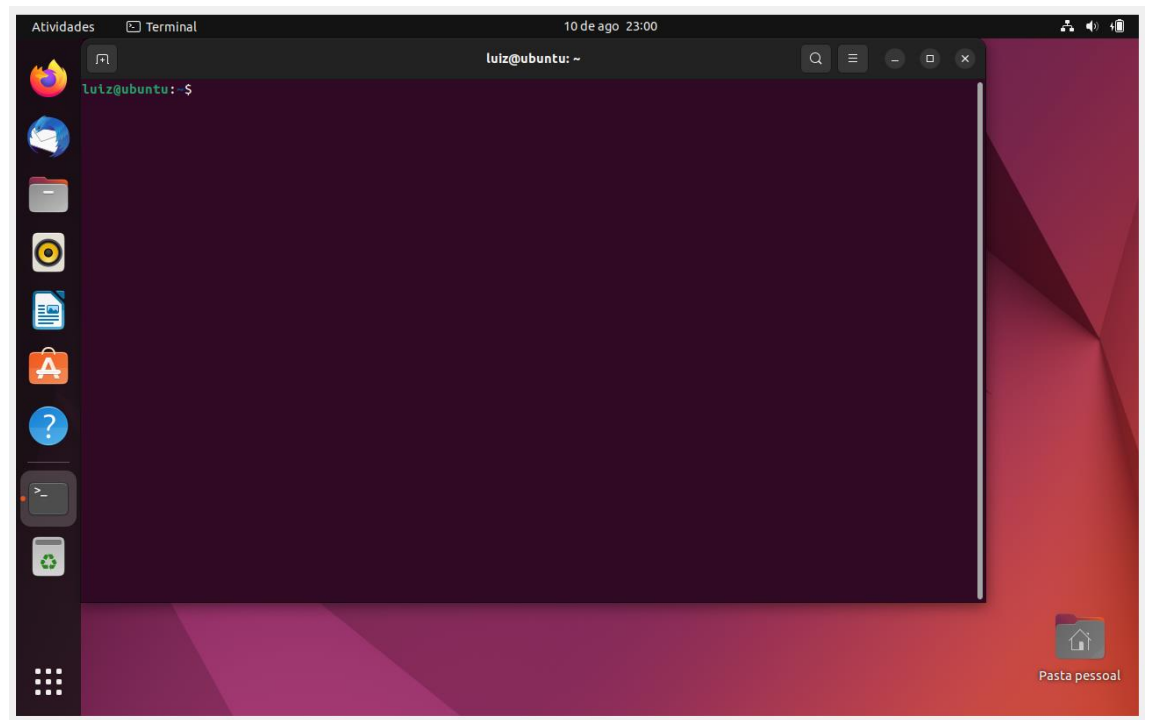
- ls



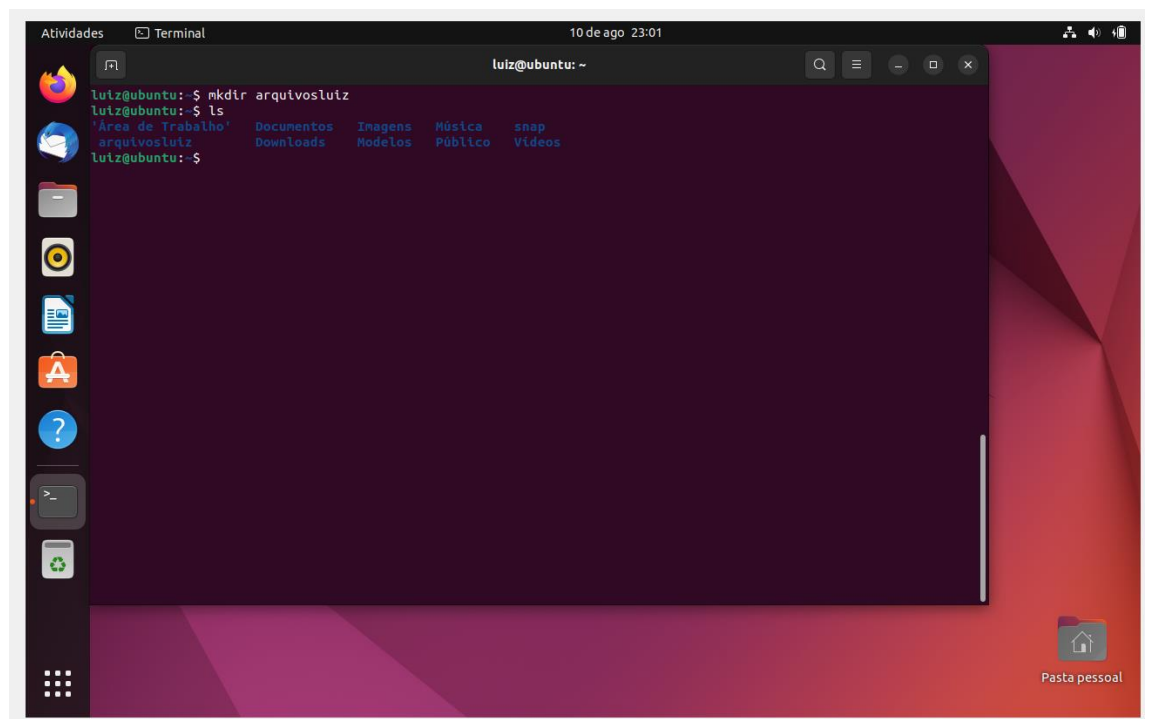
- man



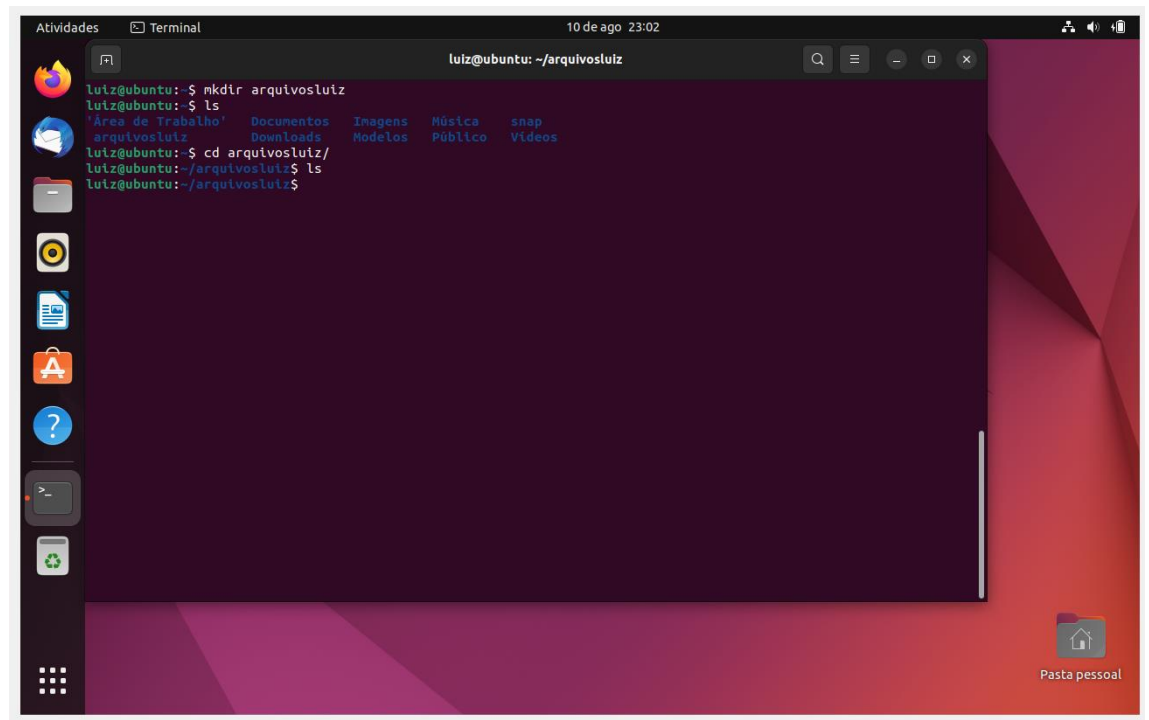
- clear



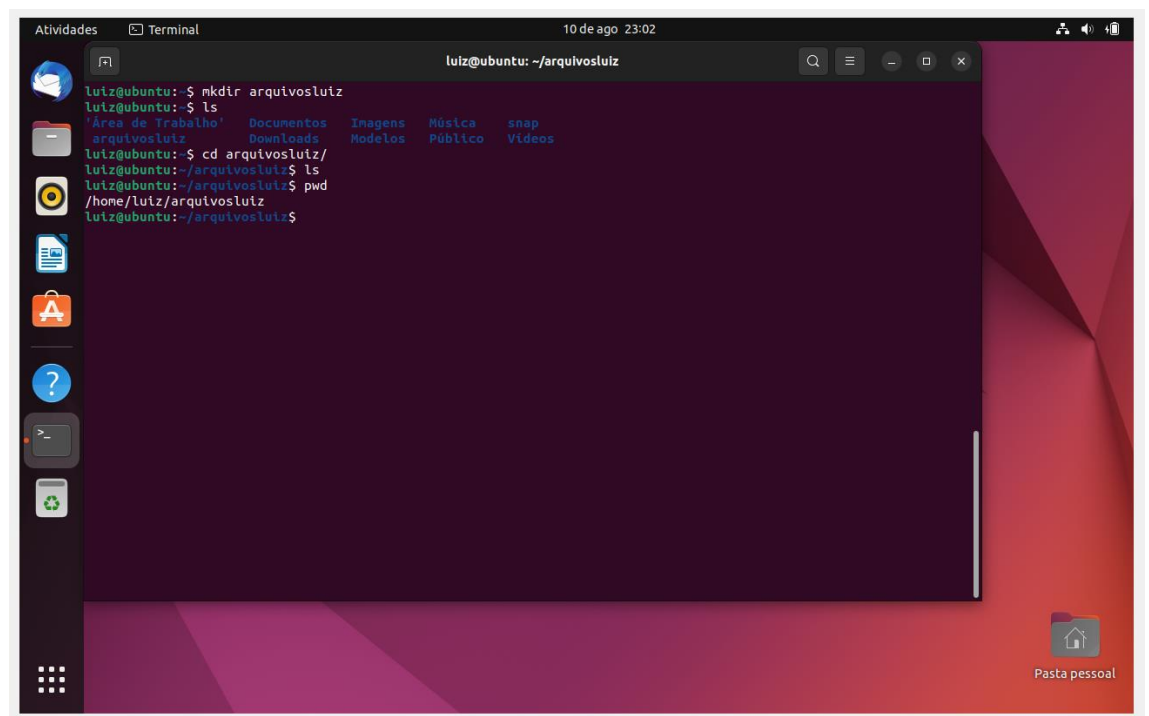
- mkdir



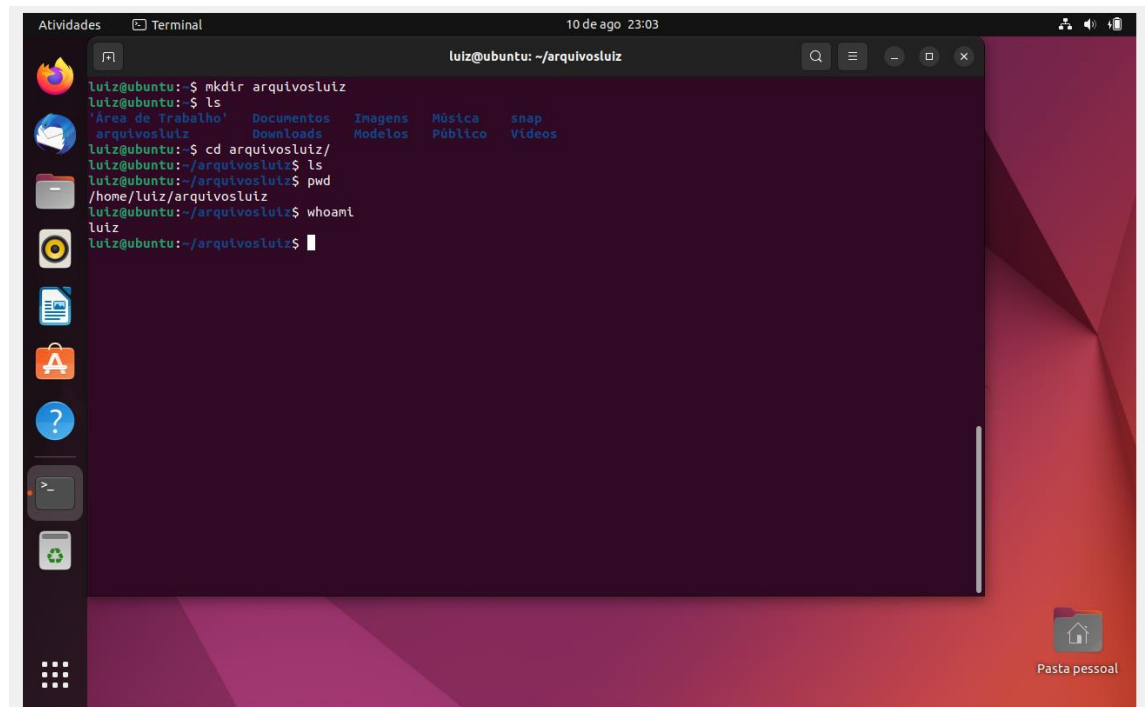
- cd



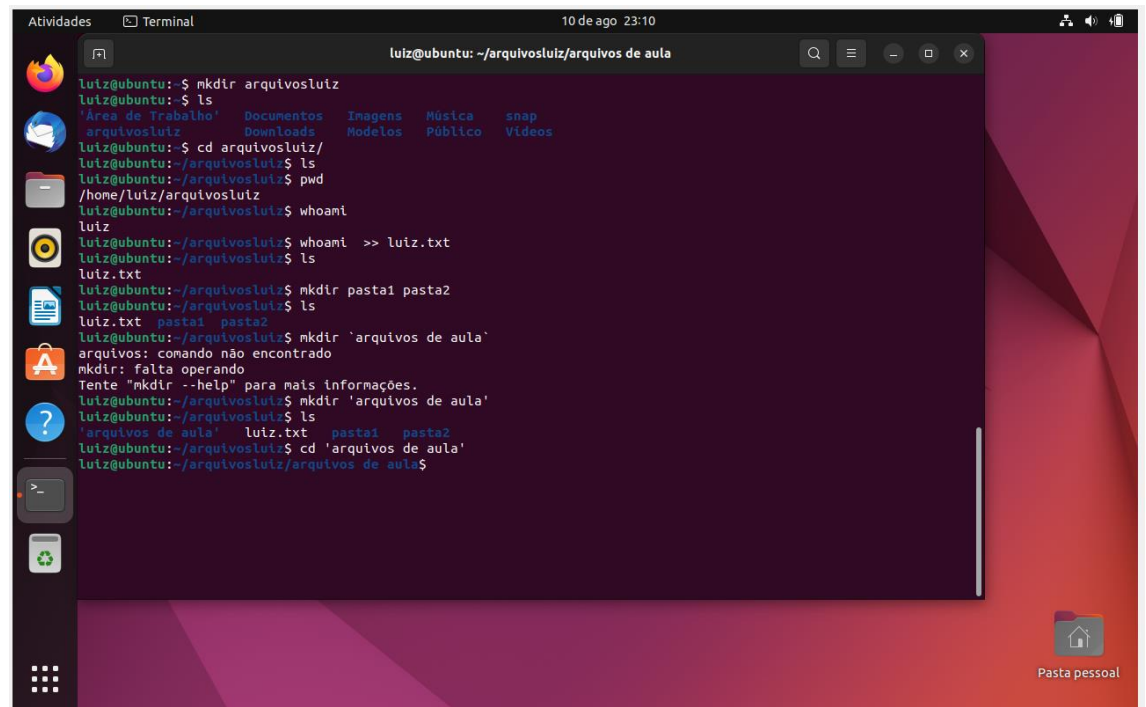
- pwd



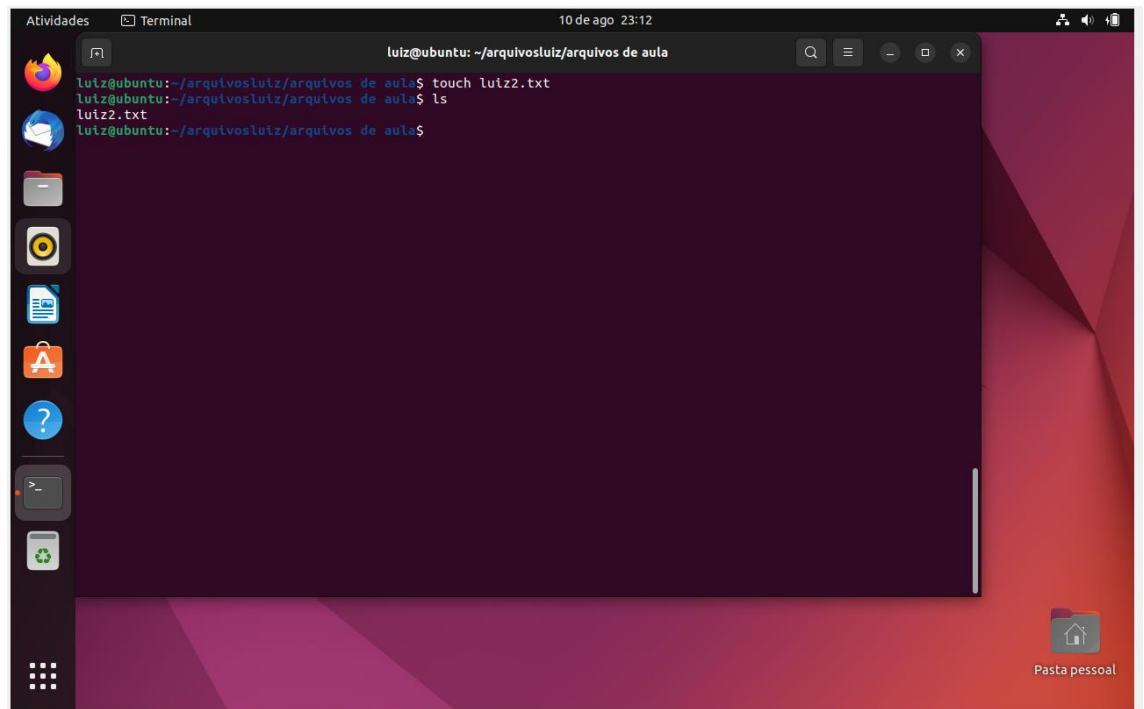
- whoami



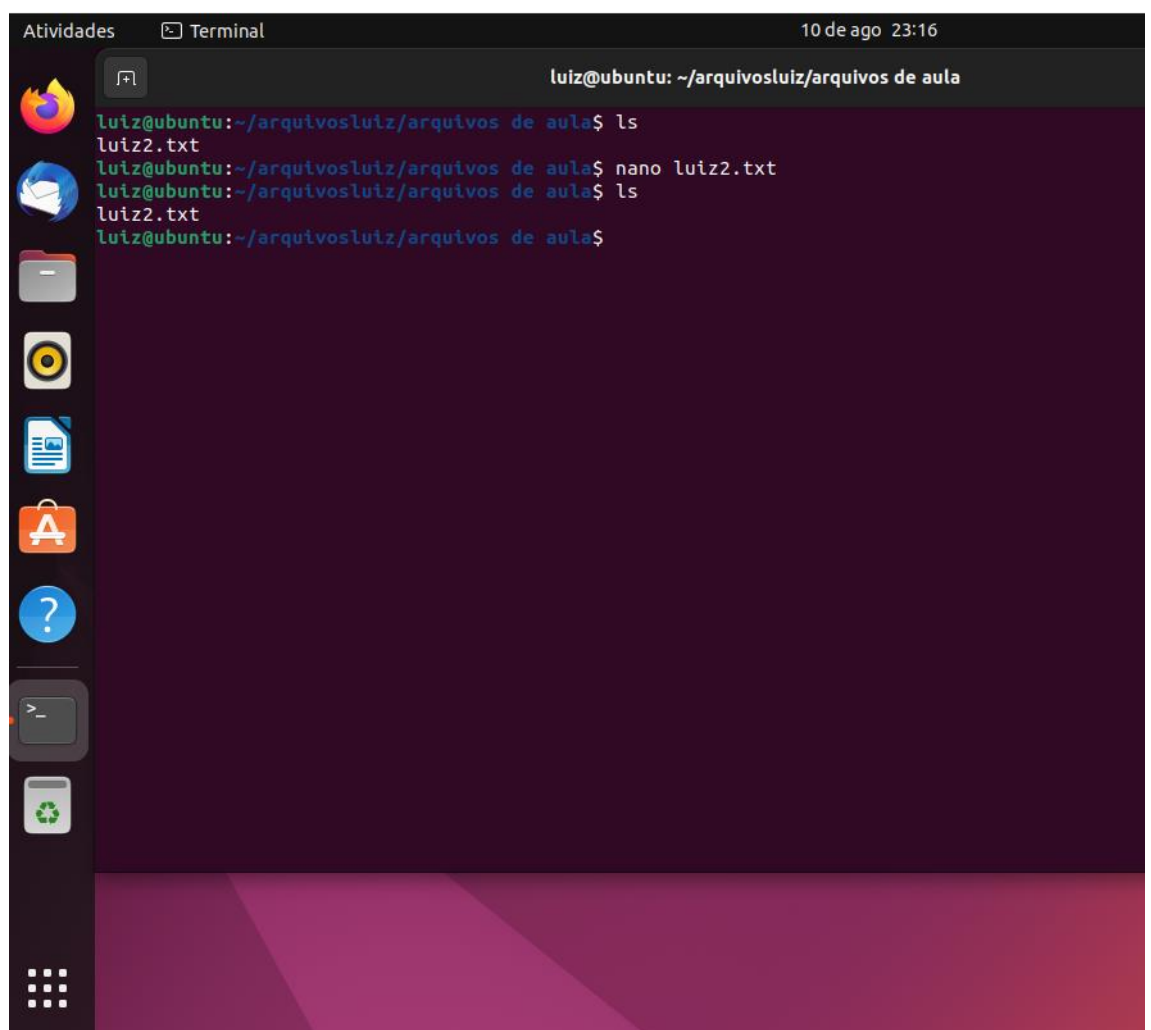
- Redirecionadores, criar e acessar pasta com nome composto, exemplo



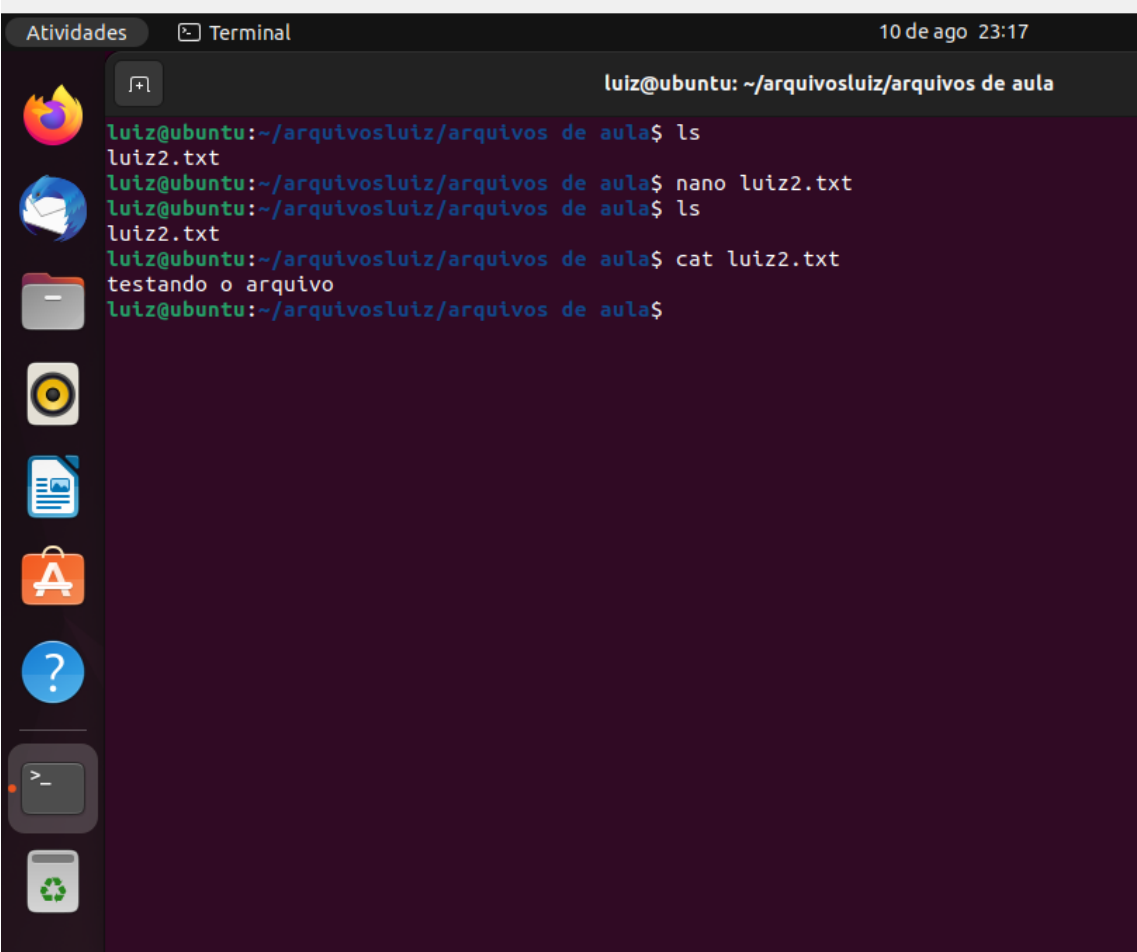
- Touch



- nano - editar arquivo de texto



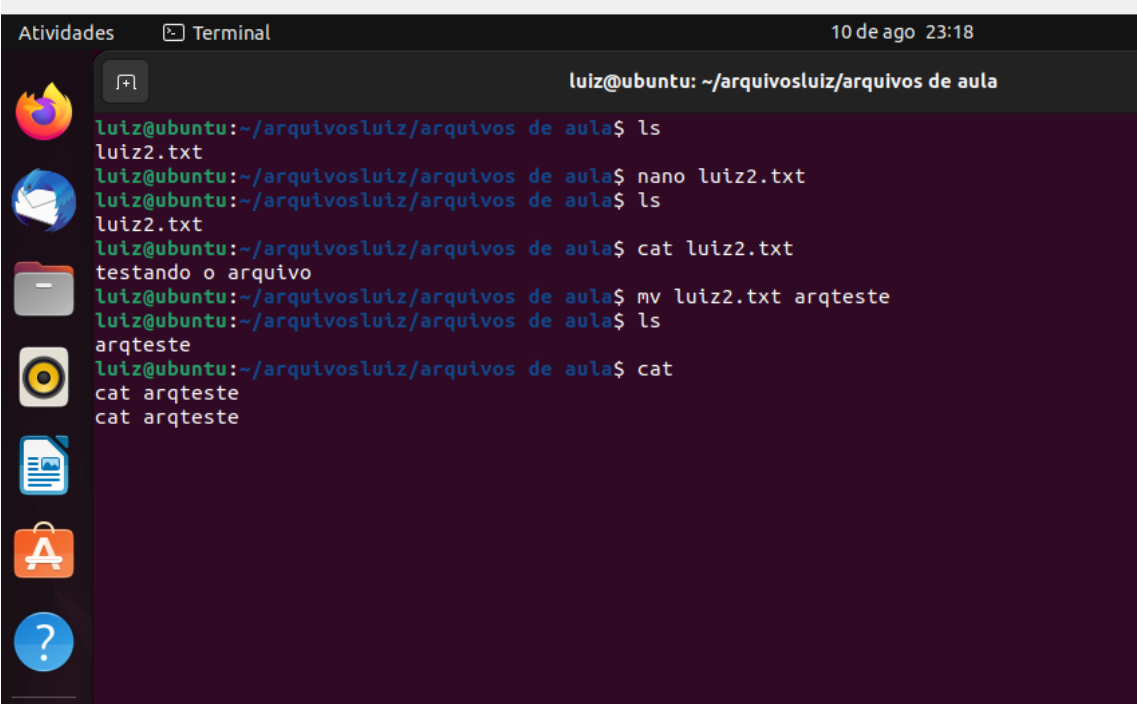
- Cat



A terminal window titled "Terminal" with a timestamp of "10 de ago 23:17". The prompt is "luiz@ubuntu: ~/arquivosluiz/arquivos de aula". The user enters the following commands:

```
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ ls
luiz2.txt
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ nano luiz2.txt
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ ls
luiz2.txt
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ cat luiz2.txt
testando o arquivo
luiz@ubuntu:~/arquivosluiz/arquivos de aula$
```

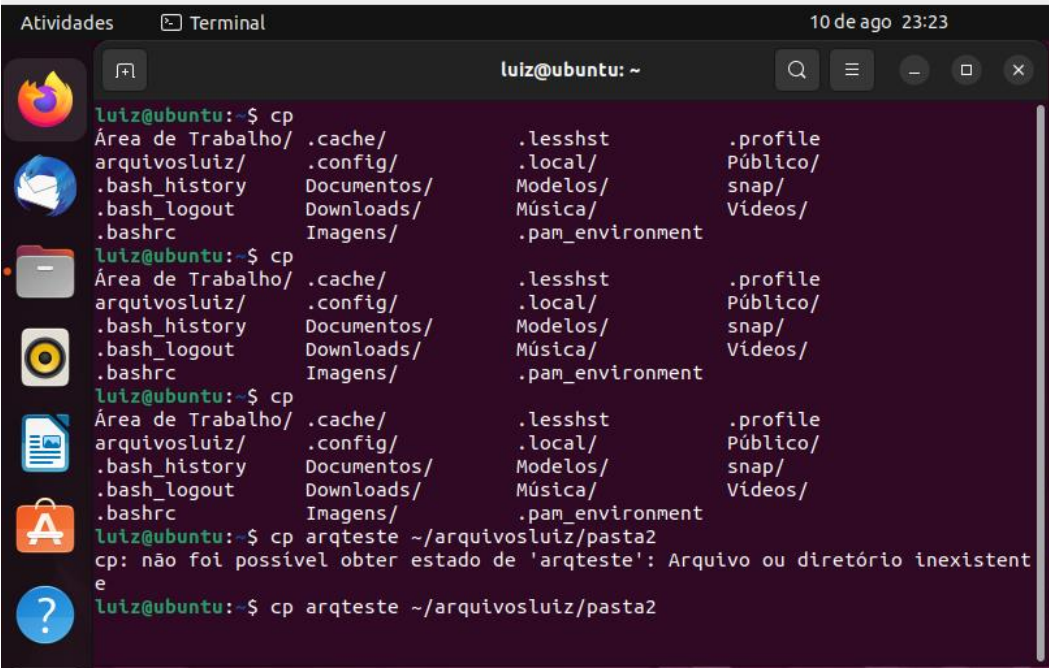
- Mv



A terminal window titled "Terminal" with a timestamp of "10 de ago 23:18". The prompt is "luiz@ubuntu: ~/arquivosluiz/arquivos de aula". The user enters the following commands:

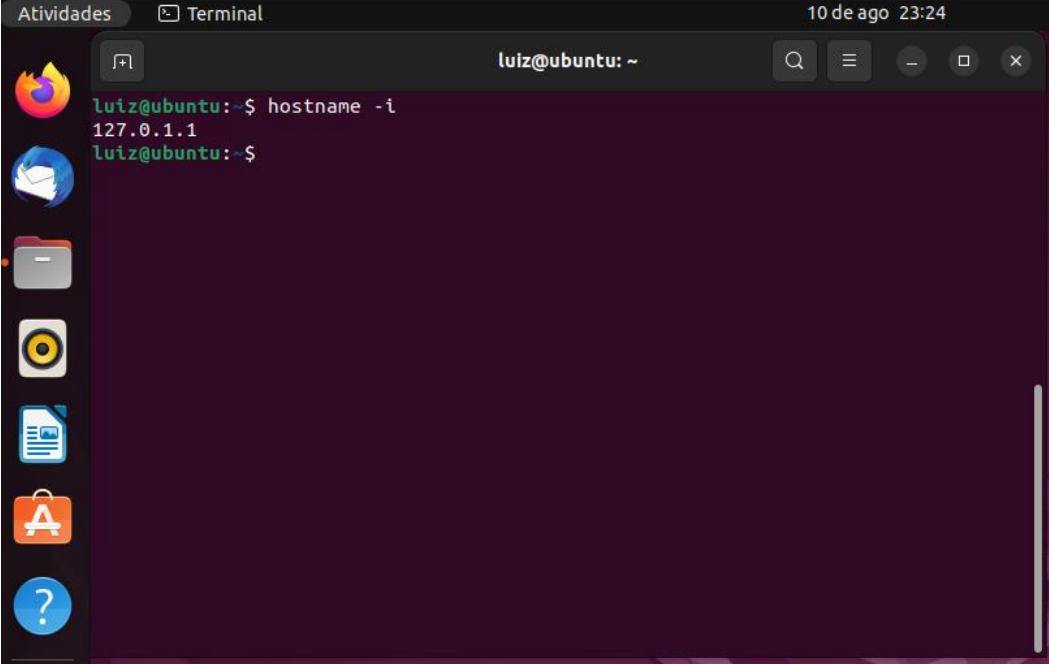
```
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ ls
luiz2.txt
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ nano luiz2.txt
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ ls
luiz2.txt
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ cat luiz2.txt
testando o arquivo
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ mv luiz2.txt arqteste
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ ls
arqteste
luiz@ubuntu:~/arquivosluiz/arquivos de aula$ cat
cat arqteste
cat arqteste
```


- Cp



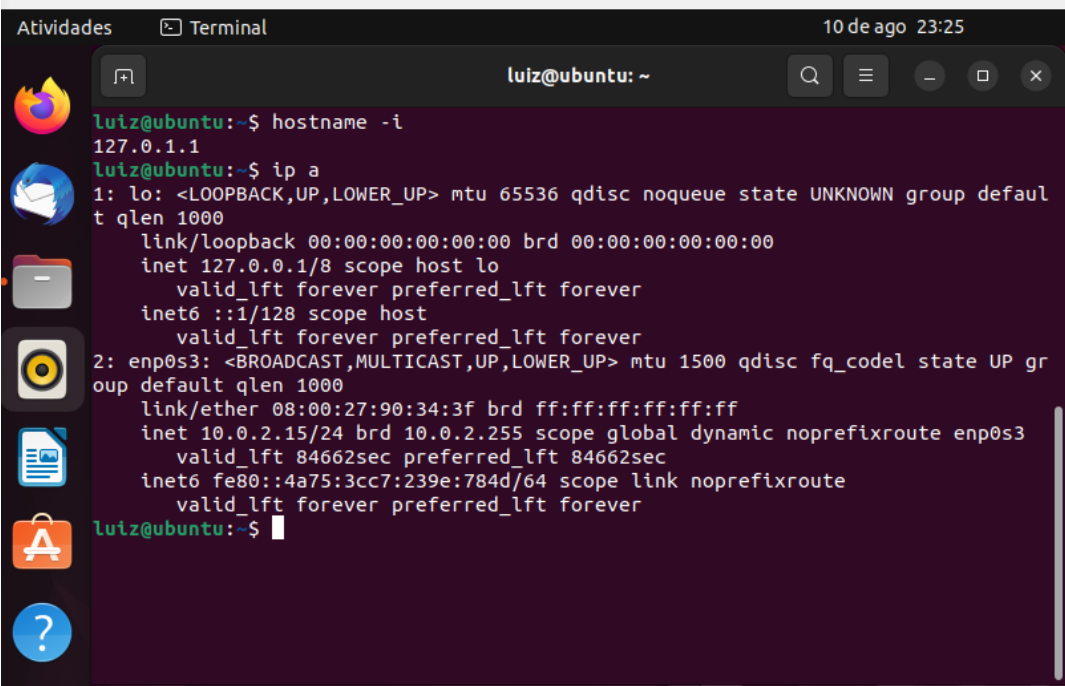
```
luiz@ubuntu: ~  
luiz@ubuntu:~$ cp  
Área de Trabalho/ .cache/ .lessht .profile  
arquivosluiz/ .config/ .local/ Público/  
.bash_history Documentos/ Modelos/ snap/  
.bash_logout Downloads/ Música/ Videos/  
.bashrc Imagens/ .pam_environment  
luiz@ubuntu:~$ cp  
Área de Trabalho/ .cache/ .lessht .profile  
arquivosluiz/ .config/ .local/ Público/  
.bash_history Documentos/ Modelos/ snap/  
.bash_logout Downloads/ Música/ Videos/  
.bashrc Imagens/ .pam_environment  
luiz@ubuntu:~$ cp  
Área de Trabalho/ .cache/ .lessht .profile  
arquivosluiz/ .config/ .local/ Público/  
.bash_history Documentos/ Modelos/ snap/  
.bash_logout Downloads/ Música/ Videos/  
.bashrc Imagens/ .pam_environment  
luiz@ubuntu:~$ cp arqteste ~/arquivosluiz/pasta2  
cp: não foi possível obter estado de 'arqteste': Arquivo ou diretório inexistente  
luiz@ubuntu:~$ cp arqteste ~/arquivosluiz/pasta2
```

- hostname -i



```
luiz@ubuntu: ~  
luiz@ubuntu:~$ hostname -i  
127.0.0.1  
luiz@ubuntu:~$
```

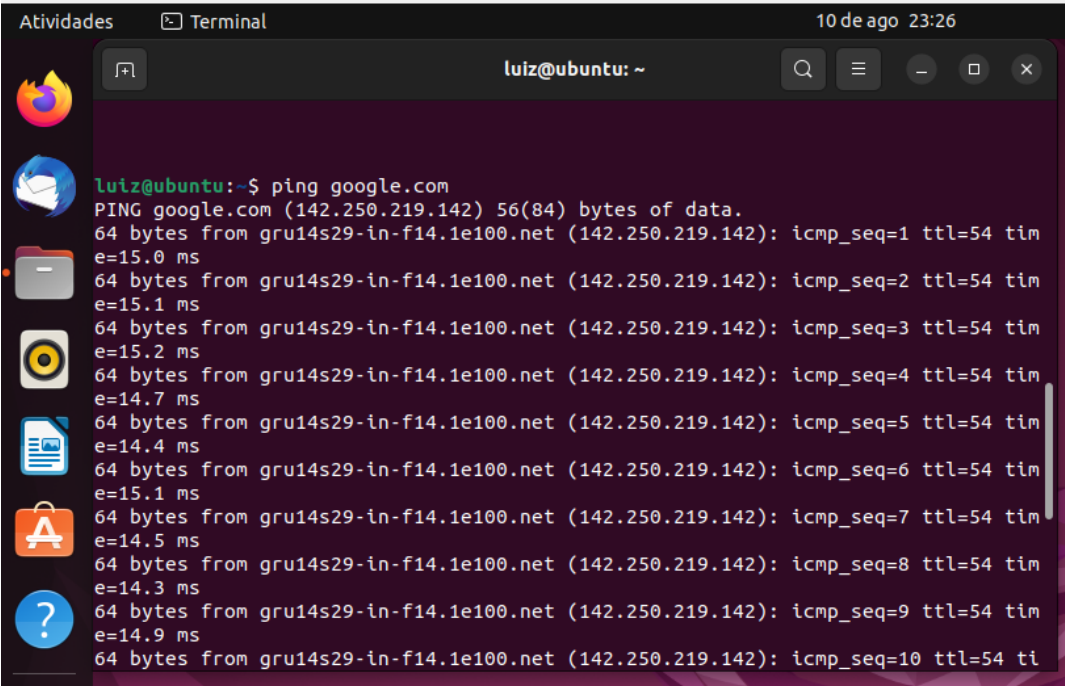
- ip a



A terminal window titled "Terminal" with the user "luiz@ubuntu: ~". The window shows the output of the commands `hostname -i` and `ip a`. The `hostname -i` command returns `127.0.1.1`. The `ip a` command shows details for the loopback interface `lo` and the ethernet interface `enp0s3`.

```
luiz@ubuntu:~$ hostname -i
127.0.1.1
luiz@ubuntu:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:90:34:3f brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 84662sec preferred_lft 84662sec
    inet6 fe80::4a75:3cc7:239e:784d/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
luiz@ubuntu:~$
```

-
- Ping



A terminal window titled "Terminal" with the user "luiz@ubuntu: ~". The window shows the output of the `ping google.com` command. The output displays the IP address of google.com (142.250.219.142) and ten successful ping results with varying response times.

```
luiz@ubuntu:~$ ping google.com
PING google.com (142.250.219.142) 56(84) bytes of data:
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=1 ttl=54 time=15.0 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=2 ttl=54 time=15.1 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=3 ttl=54 time=15.2 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=4 ttl=54 time=14.7 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=5 ttl=54 time=14.4 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=6 ttl=54 time=15.1 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=7 ttl=54 time=14.5 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=8 ttl=54 time=14.3 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=9 ttl=54 time=14.9 ms
64 bytes from gru14s29-in-f14.1e100.net (142.250.219.142): icmp_seq=10 ttl=54 ti
```

-
- free-h & free-m

```
Atividades Terminal 10 de ago 23:27
luiz@ubuntu: ~
luiz@ubuntu:~$ free -h
              total        usada        livre      compart.  buff/cache  disponivel
Mem.:          7,7Gi       765Mi       4,0Gi         38Mi         3,0Gi         6,7Gi
Swap:          2,0Gi           0B         2,0Gi
luiz@ubuntu:~$ free -m
              total        usada        livre      compart.  buff/cache  disponivel
Mem.:          7933         764         4054          38         3114         6887
Swap:          2047           0         2047
luiz@ubuntu:~$
```

- Top

```
Atividades Terminal 10 de ago 23:27
luiz@ubuntu: ~
top - 23:27:32 up 31 min, 1 user, load average: 0,24, 0,14, 0,11
Tarefas: 195 total, 1 em exec., 194 dormindo, 0 parado, 0 zumbi
%CPU(s): 0,7 us, 0,3 sy, 0,0 ni, 99,0 id, 0,0 wa, 0,0 hi, 0,1 si, 0,0 st
MB mem : 7933,1 total, 4054,1 livre, 764,8 usados, 3114,1 buff/cache
MB swap: 2048,0 total, 2048,0 livre, 0,0 usados, 6887,5 mem dispon.

  PID  USUARIO  PR  NI  VIRT  RES  SHR  S  %CPU  %MEM  TEMPO+  COMANDO
    1434 luiz    20   0 4870204 368508 144148 S   5,0   4,5   0:51.24 gnome-s+
    3693 luiz    20   0 563700 52916 40504 S   1,3   0,7   0:02.53 gnome-t+
    3816 luiz    20   0 22296 4224 3456 R   0,3   0,1   0:00.02 top
      1 root    20   0 168072 12896 8160 S   0,0   0,2   0:05.98 systemd
      2 root    20   0      0      0      0 S   0,0   0,0   0:00.00 kthreadd
      3 root     0 -20      0      0      0 I   0,0   0,0   0:00.00 rcu_gp
      4 root     0 -20      0      0      0 I   0,0   0,0   0:00.00 rcu_par+
      5 root     0 -20      0      0      0 I   0,0   0,0   0:00.00 slub_fl+
      6 root     0 -20      0      0      0 I   0,0   0,0   0:00.00 netns
      8 root     0 -20      0      0      0 I   0,0   0,0   0:00.00 kworker+
     10 root     0 -20      0      0      0 I   0,0   0,0   0:00.00 mm_perc+
     11 root    20   0      0      0      0 I   0,0   0,0   0:00.00 rcu_tas+
     12 root    20   0      0      0      0 I   0,0   0,0   0:00.00 rcu_tas+
     13 root    20   0      0      0      0 I   0,0   0,0   0:00.00 rcu_tas+
     14 root    20   0      0      0      0 S   0,0   0,0   0:00.06 ksoftir+
     15 root    20   0      0      0      0 I   0,0   0,0   0:00.76 rcu_pre+
     16 root    rt   0      0      0      0 S   0,0   0,0   0:00.03 migrati+
```

- Ps e ps aux

Atividades 10 de ago 23:28

luiz@ubuntu: ~

```
luiz@ubuntu:~$ ps
  PID TTY          TIME CMD
 3711 pts/0    00:00:00 bash
 3834 pts/0    00:00:00 ps

luiz@ubuntu:~$ ps aux
```

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
root	1	0.3	0.1	168072	12896	?	Ss	22:55	0:05	/sbin/init sp
root	2	0.0	0.0	0	0	?	S	22:55	0:00	[kthreadd]
root	3	0.0	0.0	0	0	?	I<	22:55	0:00	[rcu_gp]
root	4	0.0	0.0	0	0	?	I<	22:55	0:00	[rcu_par_gp]
root	5	0.0	0.0	0	0	?	I<	22:55	0:00	[slub_flushwq]
root	6	0.0	0.0	0	0	?	I<	22:55	0:00	[netns]
root	8	0.0	0.0	0	0	?	I<	22:55	0:00	[kworker/0:0H]
root	10	0.0	0.0	0	0	?	I<	22:55	0:00	[mm_percpu_wq]
root	11	0.0	0.0	0	0	?	I	22:55	0:00	[rcu_tasks_kt]
root	12	0.0	0.0	0	0	?	I	22:55	0:00	[rcu_tasks_ru]
root	13	0.0	0.0	0	0	?	I	22:55	0:00	[rcu_tasks_tr]
root	14	0.0	0.0	0	0	?	S	22:55	0:00	[ksoftirqd/0]
root	15	0.0	0.0	0	0	?	I	22:55	0:00	[rcu_preempt]
root	16	0.0	0.0	0	0	?	S	22:55	0:00	[migration/0]
root	17	0.0	0.0	0	0	?	S	22:55	0:00	[idle_inject/0]
root	19	0.0	0.0	0	0	?	S	22:55	0:00	[cpuhp/0]

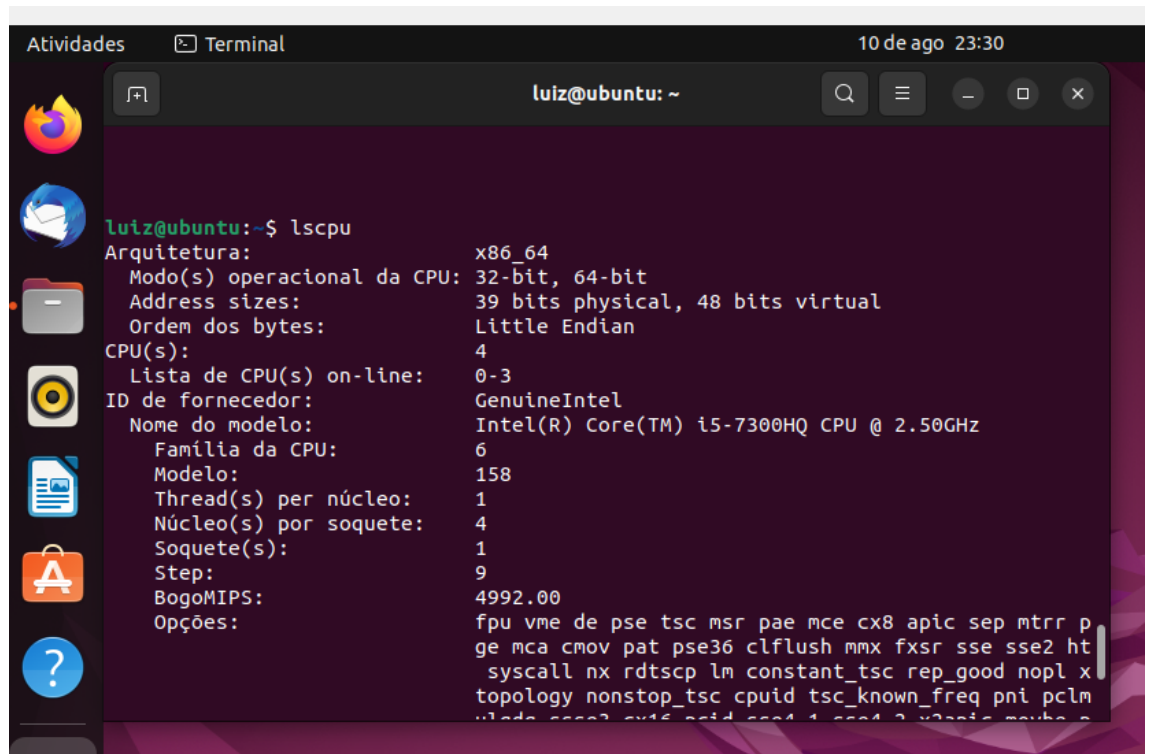
- Uname

Atividades Terminal 10 de ago 23:29

luiz@ubuntu: ~

```
luiz@ubuntu:~$ uname
Linux
luiz@ubuntu:~$
```

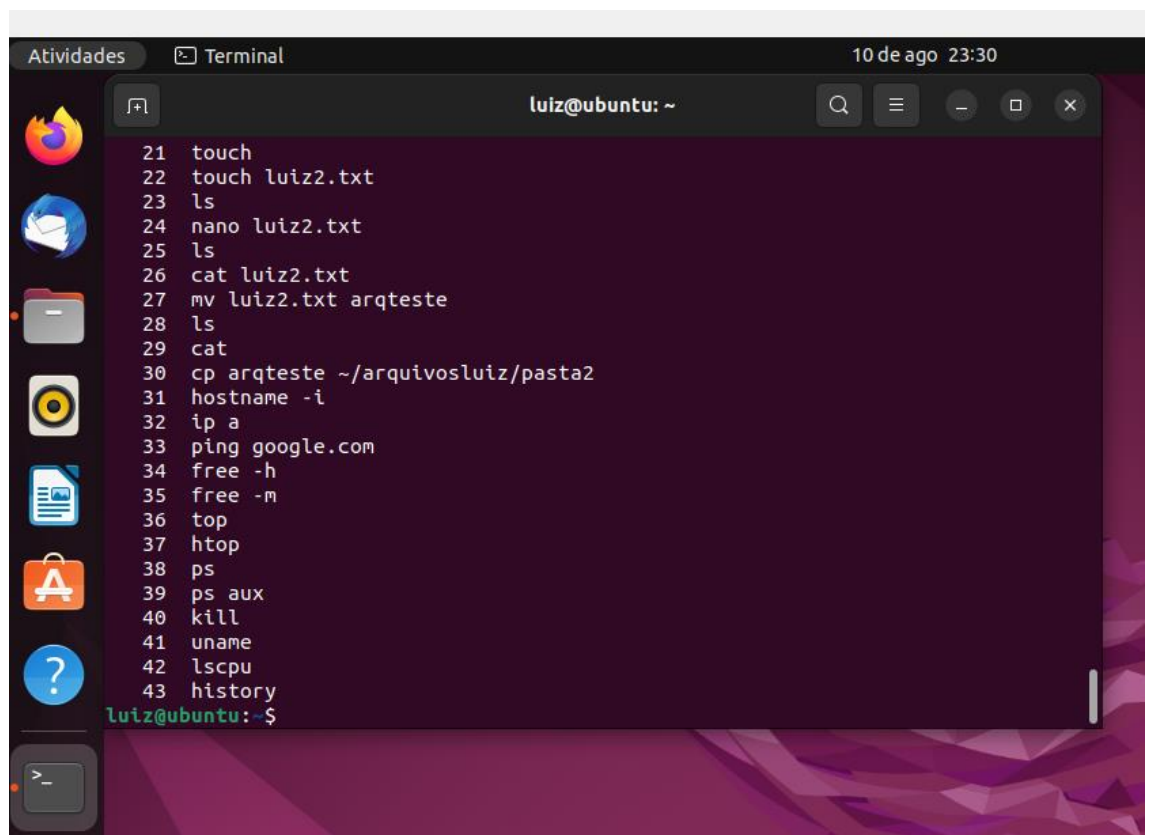
-
- lscpu & lsusb



A terminal window titled "Terminal" with the address bar showing "luiz@ubuntu: ~". The terminal displays the output of the command `lscpu`. The output provides detailed information about the system's CPU architecture, including the number of CPUs, the CPU model (Intel(R) Core(TM) i5-7300HQ), and various CPU features.

```
luiz@ubuntu:~$ lscpu
Arquitetura:                x86_64
Modo(s) operacional da CPU: 32-bit, 64-bit
Address sizes:              39 bits physical, 48 bits virtual
Ordem dos bytes:            Little Endian
CPU(s):                     4
Lista de CPU(s) on-line:    0-3
ID de fornecedor:           GenuineIntel
Nome do modelo:             Intel(R) Core(TM) i5-7300HQ CPU @ 2.50GHz
Familia da CPU:             6
Modelo:                     158
Thread(s) per núcleo:      1
Núcleo(s) por soquete:     4
Soquete(s):                 1
Step:                       9
BogoMIPS:                   4992.00
Opções:                     fpu vme de pse tsc msr pae mce cx8 apic sep mtrr p
                             ge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht
                             syscall nx rdtscp lm constant_tsc rep_good nopl x
                             topology nonstop_tsc cpuid tsc_known_freq pni pclm
                             mwaitx x2apic movbe sse4_1 sse4_2 x2apic movbe s
```

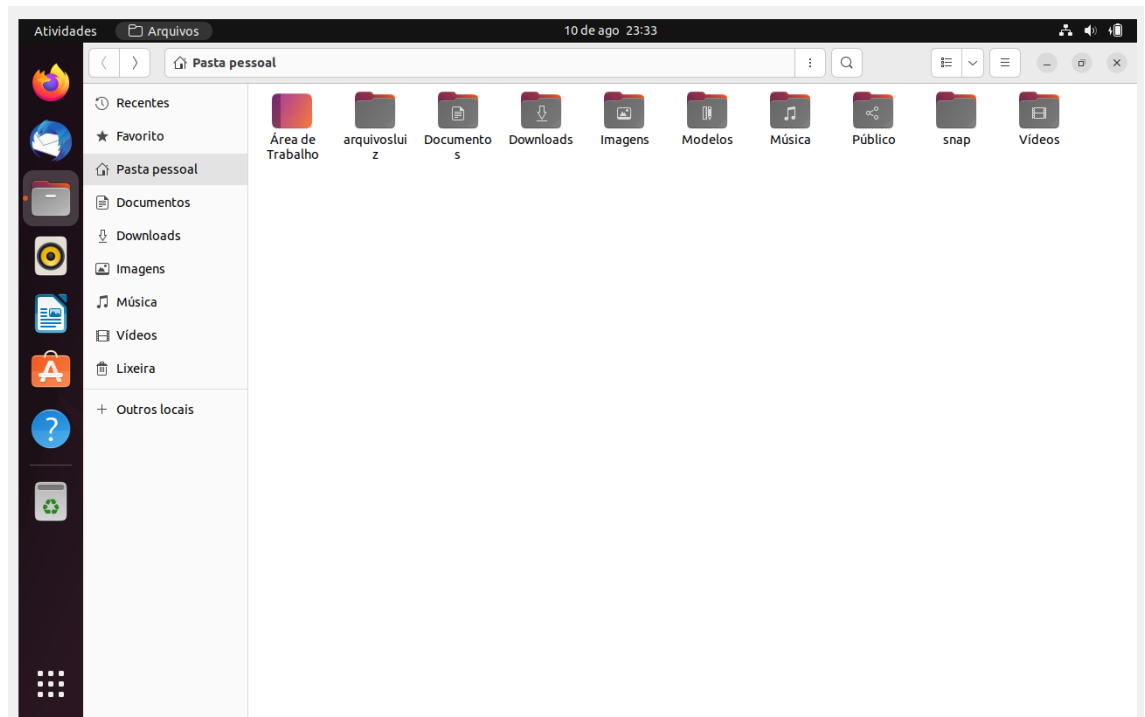
-
- History



A terminal window titled "Terminal" with the address bar showing "luiz@ubuntu: ~". The terminal displays the output of the `history` command, which lists the commands entered in the current session. The commands are numbered from 21 to 43.

```
luiz@ubuntu:~$ history
21 touch
22 touch luiz2.txt
23 ls
24 nano luiz2.txt
25 ls
26 cat luiz2.txt
27 mv luiz2.txt arqteste
28 ls
29 cat
30 cp arqteste ~/arquivosluiz/pasta2
31 hostname -i
32 ip a
33 ping google.com
34 free -h
35 free -m
36 top
37 htop
38 ps
39 ps aux
40 kill
41 uname
42 lscpu
43 history
luiz@ubuntu:~$
```

3. Assista aos tutoriais abaixo e explique como é estruturado o 'Linux File System'. Tire prints da tela mostrando como o seu sistema está estruturado, para exemplificar os casos.



O "Linux File System" (ou sistema de arquivos do Linux) refere-se à maneira como os arquivos e diretórios são organizados, armazenados e acessados no sistema operacional Linux. O Linux suporta uma variedade de sistemas de arquivos, cada um com suas próprias características e funcionalidades. Vou explicar a estrutura básica do sistema de arquivos do Linux, usando o sistema de arquivos hierárquico padrão, conhecido como "Filesystem Hierarchy Standard" (FHS).