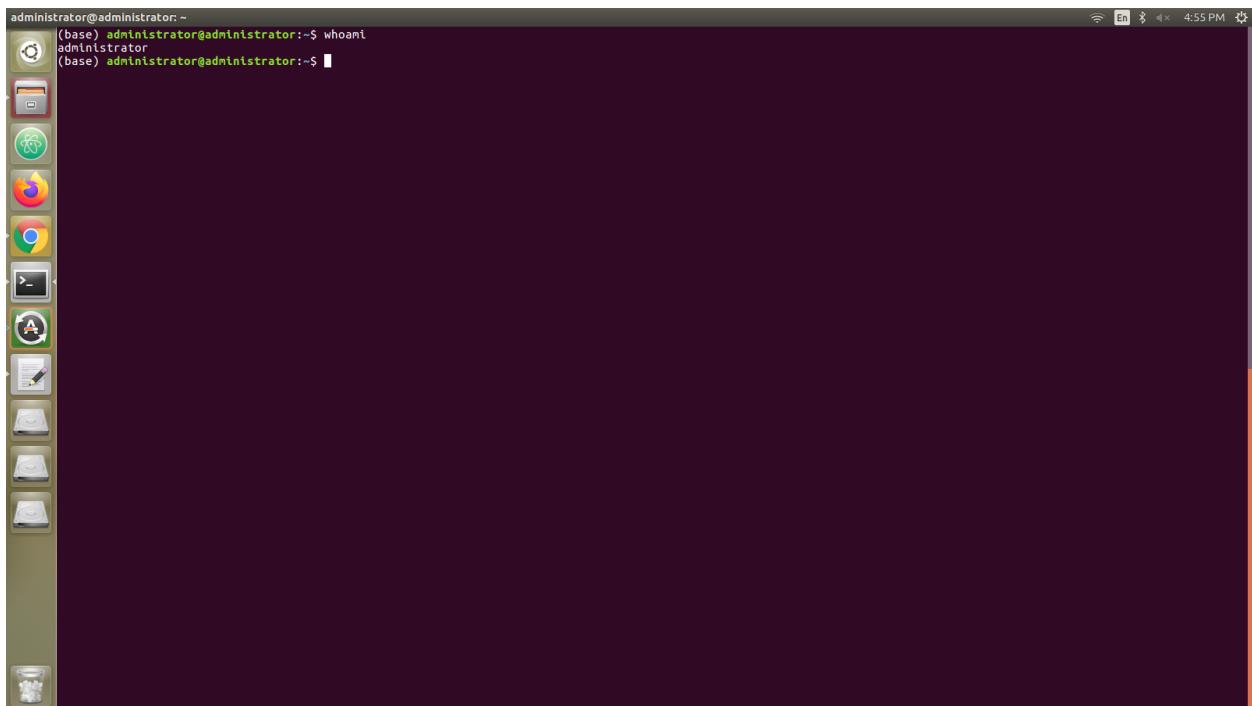


Distributed System

Assignment-1

Name: Dodiya Ayush Hareshbhai
Roll No.: U20CS034

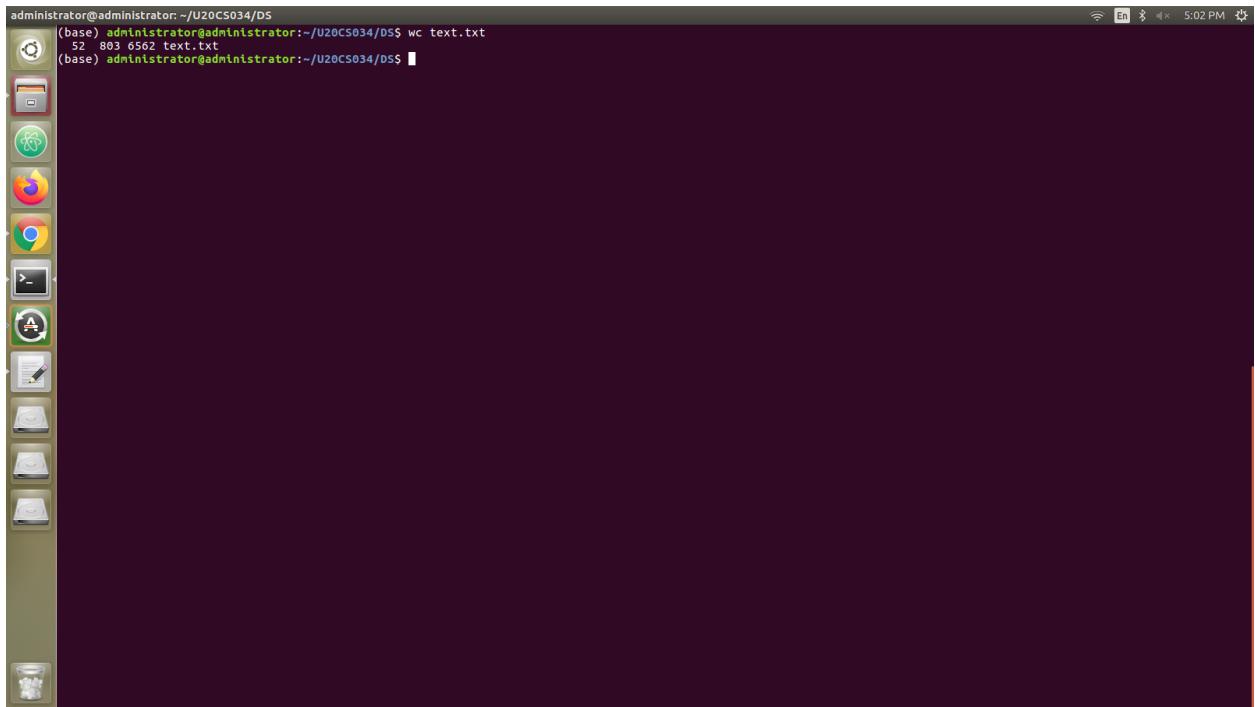


```
administrator@administrator:~  
(base) administrator@administrator:~$ who  
guest-8z0e04 tty7 2023-08-02 21:43 (:0)  
administrator tty8 2023-08-02 21:44 (:1)  
(base) administrator@administrator:~$
```

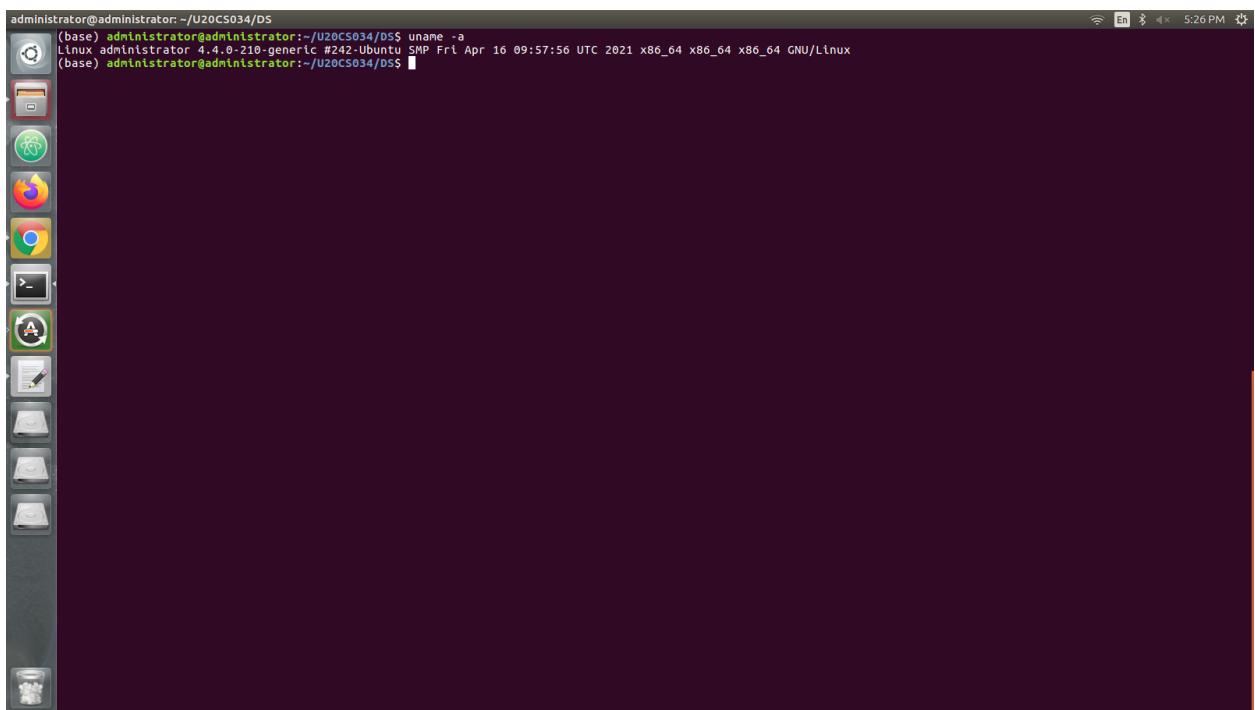
```
administrator@administrator:~/U20CS034/DS$  
(base) administrator@administrator:~/U20CS034/DS$ wget google.com  
--2023-08-02 17:29:22-- http://google.com/  
Resolving google.com (google.com)... 142.250.183.142, 2404:6800:4009:80f::200e  
Connecting to google.com (google.com)|142.250.183.142|:80... connected.  
HTTP request sent, awaiting response... 301 Moved Permanently  
Location: http://www.google.com/ [following]  

```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ wc text.txt
52 803 6562 text.txt
(base) administrator@administrator:~/U20CS034/DS$
```



```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ uname -a
Linux administrator 4.4.0-210-generic #242-Ubuntu SMP Fri Apr 16 09:57:56 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
(base) administrator@administrator:~/U20CS034/DS$
```



```
administrator@administator:~/U20CS034/DS$ top - 17:30:23 up 1:17, 2 users, load average: 2.06, 2.07, 2.08
Tasks: 276 total, 1 running, 273 sleeping, 2 stopped, 0 zombie
%CPU(s): 50.6 us, 0.4 sy, 0.0 ni, 48.8 id, 0.2 wa, 0.0 hi, 0.0 st, 0.0 st
Kib Mem : 3941412 total, 433588 free, 1372292 used, 2135532 buff/cache
Kib Swap: 1998844 total, 1998844 free, 0 used. 1699028 avail Mem

PID USER PR NI VIRT RES SHR S %CPU %NEM TIME+ COMMAND
2729 adminis+ 20 0 1333240 104232 25488 S 100.0 2.6 75:23.19 gnome-software
1817 guest+ 20 0 1493820 166100 77492 S 99.7 4.2 76:13.34 gnome-software
2009 root 20 0 494484 128284 116444 S 1.7 3.3 6:52.95 Xorg
2578 adminis+ 20 0 1583216 177392 64060 S 0.7 4.5 6:57.31 compiz
4017 adminis+ 20 0 661812 36476 28232 S 0.3 0.9 0:08:69 gnome-terminal-
2592 adminis+ 20 0 206851 5374 4854 S 0.3 0.1 0:08:01 ksp1z-registr
7343 root 20 0 0 0 0 S 0.3 0.0 0:04:27 kworker/u8:1
7879 adminis+ 20 0 41952 3828 3084 R 0.3 0.1 0:00:03 top
  1 root 20 0 185080 5636 3964 S 0.0 0.1 0:01:06 systemd
  2 root 20 0 0 0 0 S 0.0 0.0 0:00:00 kthreadd
  3 root 20 0 0 0 0 S 0.0 0.0 0:00:02 ksoftirqd/0
  5 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 kworker/0:0H
  7 root 20 0 0 0 0 S 0.0 0.0 0:01:09 rcu_sched
  8 root 20 0 0 0 0 S 0.0 0.0 0:00:00 rcu_bh
  9 root rt 0 0 0 0 S 0.0 0.0 0:00:14 migration/0
 10 root rt 0 0 0 0 S 0.0 0.0 0:00:00 watchdog/0
 11 root rt 0 0 0 0 S 0.0 0.0 0:00:00 watchdog/1
 12 root rt 0 0 0 0 S 0.0 0.0 0:00:17 migration/1
 13 root 20 0 0 0 0 S 0.0 0.0 0:00:03 ksoftirqd/1
 15 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 kworker/1:0H
 16 root rt 0 0 0 0 S 0.0 0.0 0:00:00 watchdog/2
 17 root rt 0 0 0 0 S 0.0 0.0 0:00:00 migration/2
 18 root 20 0 0 0 0 S 0.0 0.0 0:00:00 migration/2
 20 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 kworker/2:0H
 21 root rt 0 0 0 0 S 0.0 0.0 0:00:00 watchdog/3
 22 root rt 0 0 0 0 S 0.0 0.0 0:00:11 migration/3
 23 root 20 0 0 0 0 S 0.0 0.0 0:00:04 ksoftirqd/3
 25 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 kworker/3:0H
 26 root 20 0 0 0 0 S 0.0 0.0 0:00:00 kdevtmpfs
 27 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 netns
 28 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 perf
 29 root 20 0 0 0 0 S 0.0 0.0 0:00:00 khungtaskd
 30 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 writeback
 31 root 25 5 0 0 0 S 0.0 0.0 0:00:00 ksmd
 32 root 39 19 0 0 0 S 0.0 0.0 0:00:02 khugepaged
 33 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 crypto
 34 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 kIntegrityd
 35 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 bioset
 36 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 kblockd
 37 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 acq_sff
 38 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 i915
 39 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 devfreq_wq
 43 root 20 0 0 0 0 S 0.0 0.0 0:00:00 kswapd0
 44 root 0 -20 0 0 0 S 0.0 0.0 0:00:00 vmstat
```

```
administrator@administator:~/U20CS034/DS$ tail text.txt
(base) administrator@administator:~/U20CS034/DS$ Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

Why do we use it?
It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it look like readable English. Many desktop publishing packages and web page editors now use Lorem Ipsum as their default model text, and a search for "lorem ipsum" will uncover many web sites still in their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on purpose (injected humour and the like).

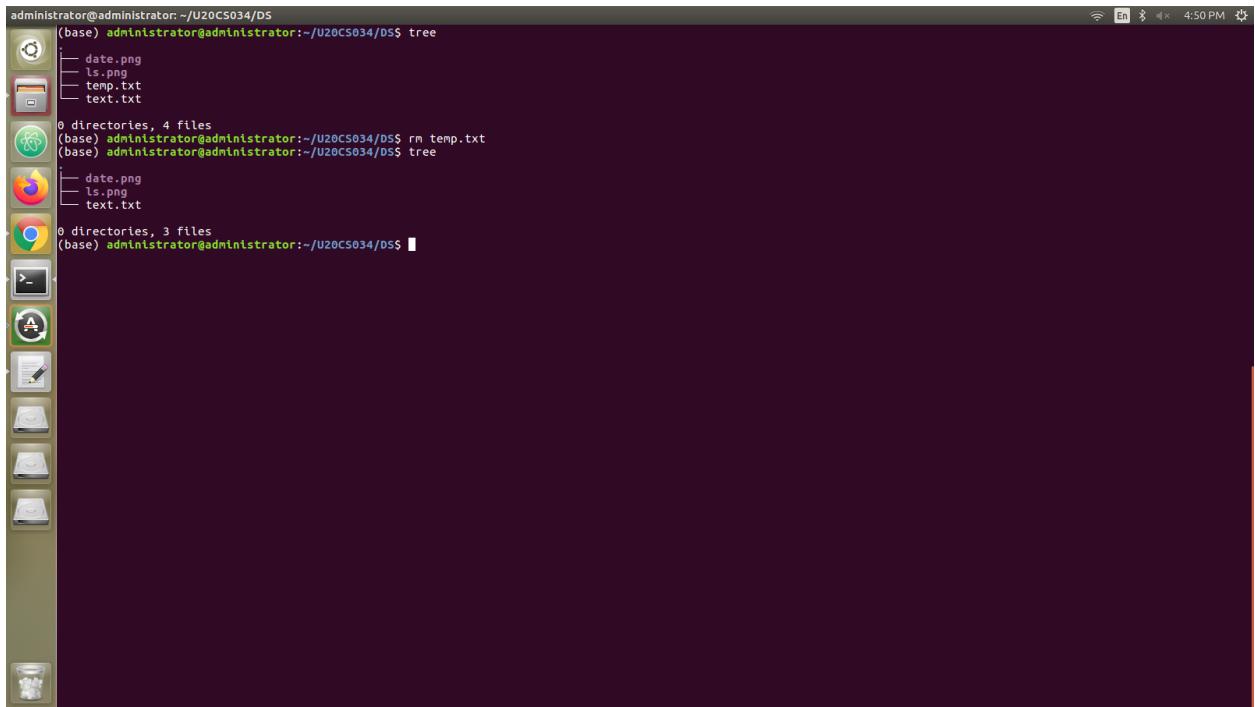
Where does it come from?
Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet..", comes from a line in section 1.10.32.

The standard chunk of Lorem Ipsum used since the 1500s is reproduced below for those interested. Sections 1.10.32 and 1.10.33 from "de Finibus Bonorum et Malorum" by Cicero are also reproduced in their exact original form, accompanied by English versions from the 1914 translation by H. Rackham.
(base) administrator@administator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS
(base) administrator@administrator:~/U20CS034/DS$ tree
.
├── date.png
├── ls.png
└── pattern.txt
└── screenshot
└── text.txt

1 directory, 4 files
(base) administrator@administrator:~/U20CS034/DS$ rmdir screenshot
(base) administrator@administrator:~/U20CS034/DS$ tree
.
├── date.png
├── ls.png
└── pattern.txt
└── text.txt

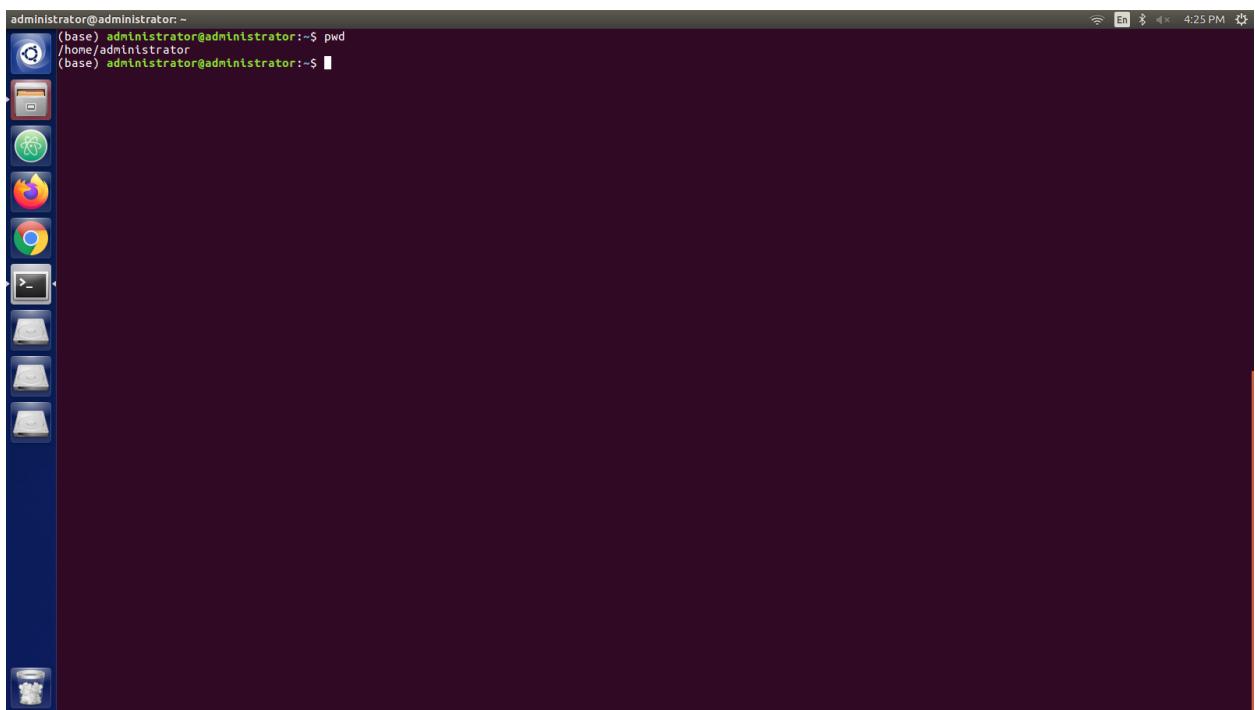
0 directories, 4 files
(base) administrator@administrator:~/U20CS034/DS$
```



```
administrator@administrator:~/U20CS034/DS$ tree
(base) administrator@administrator:~/U20CS034/DS$ tree
.
├── date.png
├── ls.png
└── temp.txt
text.txt

0 directories, 4 files
(base) administrator@administrator:~/U20CS034/DS$ rm temp.txt
(base) administrator@administrator:~/U20CS034/DS$ tree
.
├── date.png
└── ls.png

0 directories, 3 files
(base) administrator@administrator:~/U20CS034/DS$
```



```
administrator@administrator:~
(base) administrator@administrator:~$ pwd
/home/administrator
(base) administrator@administrator:~$
```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ ps
 PID TTY      TIME CMD
 4025 pts/20    00:00:00 bash
 6783 pts/20    00:00:00 info
 6789 pts/20    00:00:00 info
 8243 pts/20    00:00:00 ps
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags       Type      State      I-Node Path
unix  2      [ ]     DGRAM    CONNECTED   24436  /run/user/1000/systemd/notify
unix  2      [ ]     DGRAM    CONNECTED   21439  /run/user/938/systemd/notify
unix  2      [ ]     DGRAM    CONNECTED   11861  /run/systemd/notify
unix  2      [ ]     DGRAM    CONNECTED   11862  /run/systemd/cgroups-agent
unix  9      [ ]     DGRAM    CONNECTED   9947   /run/systemd/journal/socket
unix  2      [ ]     DGRAM    CONNECTED   9948   /run/systemd/journal/syslog
unix  19     [ ]     DGRAM    CONNECTED   9950   /run/systemd/journal/dev-log
unix  2      [ ]     DGRAM    CONNECTED   20684  /run/wpa_supplicant/wlp2s0
unix  3      [ ]     SEQPACKET  CONNECTED  42783  @0001d
unix  3      [ ]     STREAM   CONNECTED  29193  @/tmp/dbus-HNnjYDEGzb
unix  3      [ ]     STREAM   CONNECTED  29115  @/tmp/dbus-bzHCVNHRG
unix  3      [ ]     STREAM   CONNECTED  22142  @/tmp/dbus-2NbNFUZHJ
unix  3      [ ]     STREAM   CONNECTED  21588  /var/run/dbus/system_bus_socket
unix  2      [ ]     DGRAM    CONNECTED  47146
unix  3      [ ]     STREAM   CONNECTED  10129
unix  3      [ ]     STREAM   CONNECTED  38380  @administrator-com.canonical.Unity.Scope.files.T2868714985388
unix  3      [ ]     STREAM   CONNECTED  29230  @/tmp/dbus-2NbNFUZHJ
unix  3      [ ]     STREAM   CONNECTED  24830
unix  3      [ ]     STREAM   CONNECTED  39263  @/tmp/dbus-2NbNFUZHJ
unix  3      [ ]     STREAM   CONNECTED  24465  @/com/ubuntu/upstart-session/1000/2279
unix  3      [ ]     STREAM   CONNECTED  26181
unix  3      [ ]     SEQPACKET  CONNECTED  42775
unix  3      [ ]     STREAM   CONNECTED  30844
unix  3      [ ]     STREAM   CONNECTED  26610
unix  3      [ ]     STREAM   CONNECTED  39077  /run/systemd/journal/stdout
unix  3      [ ]     STREAM   CONNECTED  29116  @/tmp/dbus-2NbNFUZHJ
unix  3      [ ]     STREAM   CONNECTED  26721
unix  3      [ ]     STREAM   CONNECTED  16859
unix  3      [ ]     DGRAM    CONNECTED  68205
unix  3      [ ]     STREAM   CONNECTED  25456
unix  3      [ ]     STREAM   CONNECTED  27724
unix  3      [ ]     STREAM   CONNECTED  24200
unix  3      [ ]     STREAM   CONNECTED  42894  @/tmp/dbus-2NbNFUZHJ
unix  3      [ ]     STREAM   CONNECTED  27630
unix  3      [ ]     STREAM   CONNECTED  24768
unix  3      [ ]     STREAM   CONNECTED  44962
unix  3      [ ]     STREAM   CONNECTED  29131  /var/run/dbus/system_bus_socket
unix  3      [ ]     STREAM   CONNECTED  21890
unix  3      [ ]     STREAM   CONNECTED  51402
unix  3      [ ]     STREAM   CONNECTED  29145
unix  3      [ ]     STREAM   CONNECTED  29259
unix  3      [ ]     STREAM   CONNECTED  28693  @/tmp/dbus-HNnjYDEGzb
unix  3      [ ]     SEQPACKET  CONNECTED  47282
unix  3      [ ]     STREAM   CONNECTED  23986  @/tmp/dbus-bzHCVNHRG
unix  3      [ ]     STREAM   CONNECTED  23241  /run/user/938/pulse/native
```

```
administrator@administrator:~/U20CS034$ tree
(base) administrator@administrator:~/U20CS034$ tree
.
+-- DS
    |-- date.png
    |-- ls.png
    |-- text.txt
    `-- temp.txt

1 directory, 4 files
(base) administrator@administrator:~/U20CS034$ mv temp.txt ./DS
(base) administrator@administrator:~/U20CS034$ tree
.
+-- DS
    |-- date.png
    |-- ls.png
    |-- temp.txt
    `-- text.txt

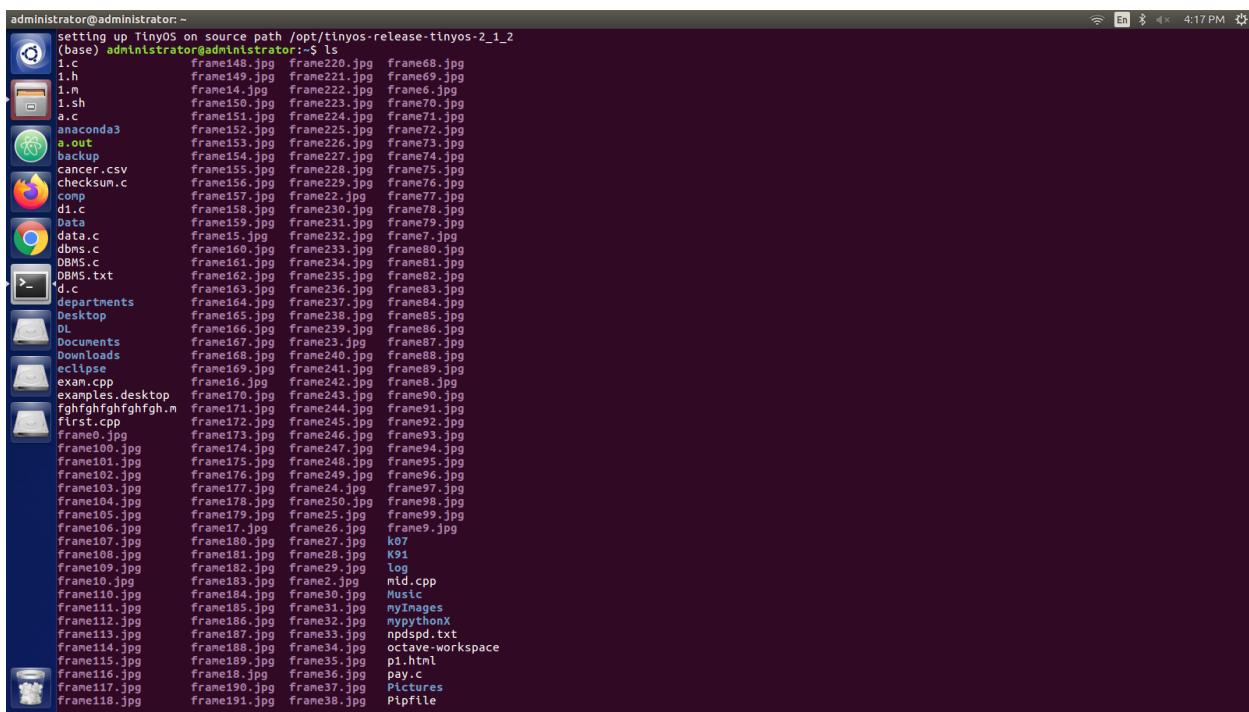
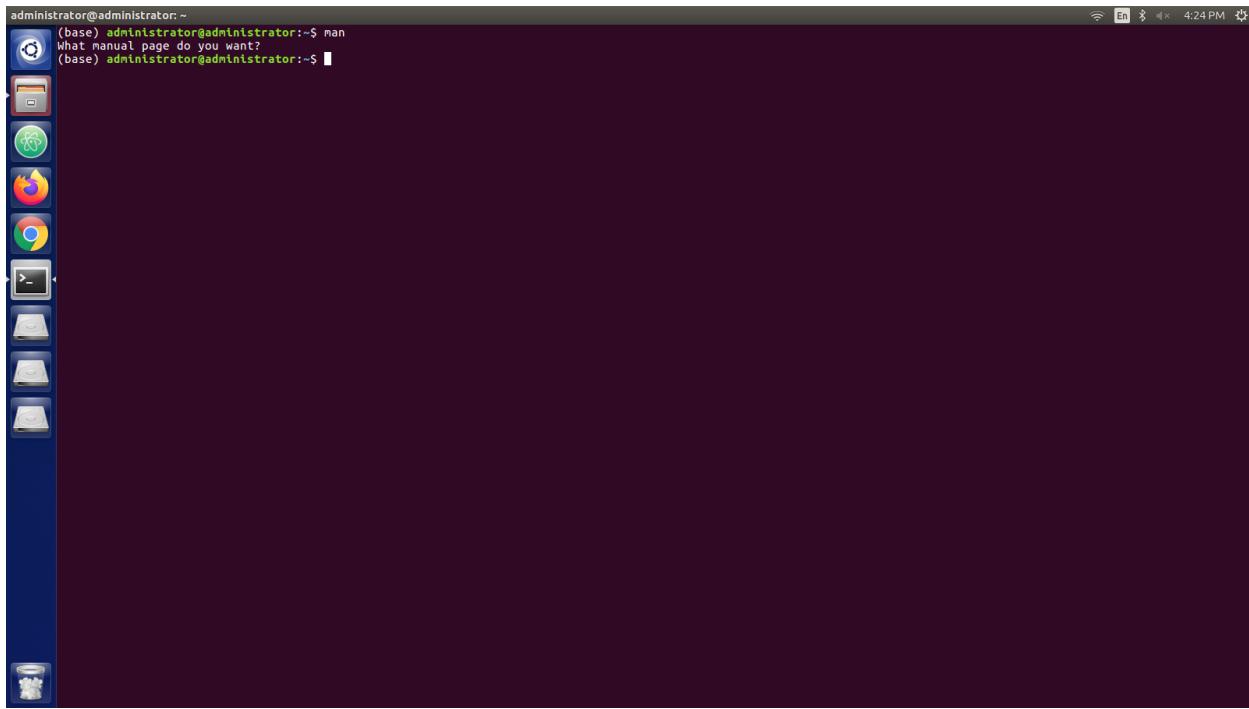
1 directory, 4 files
(base) administrator@administrator:~/U20CS034$
```

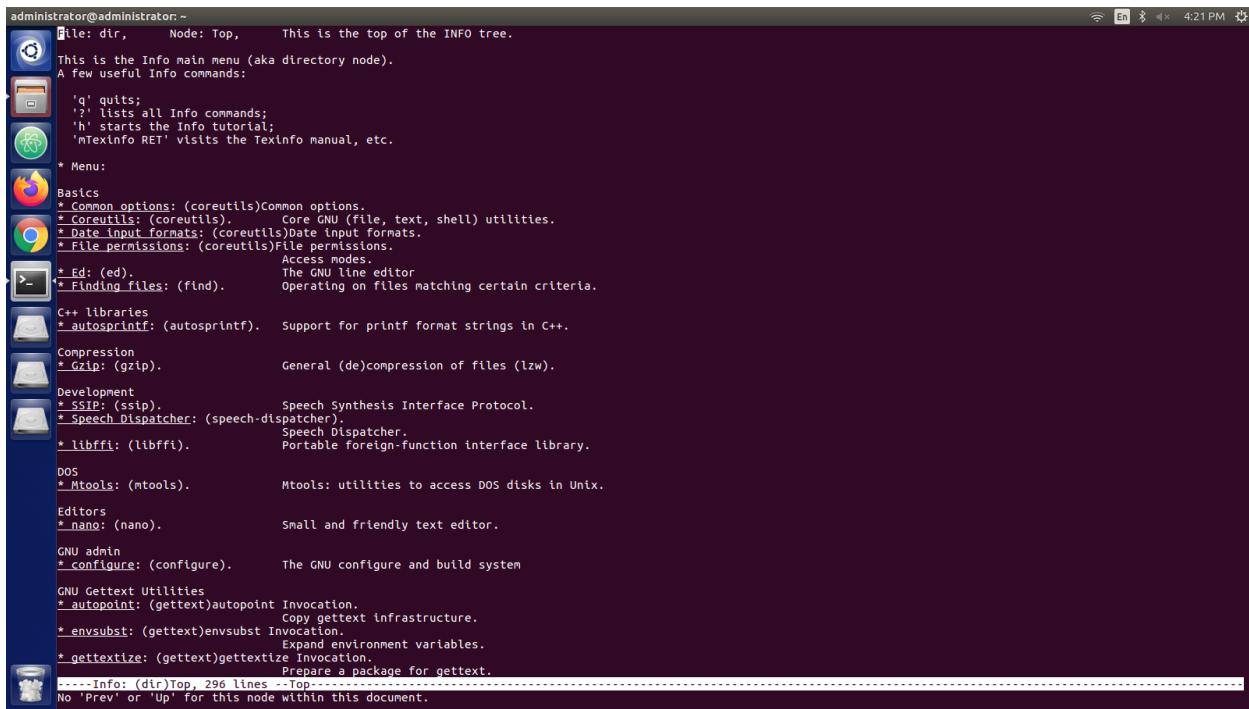
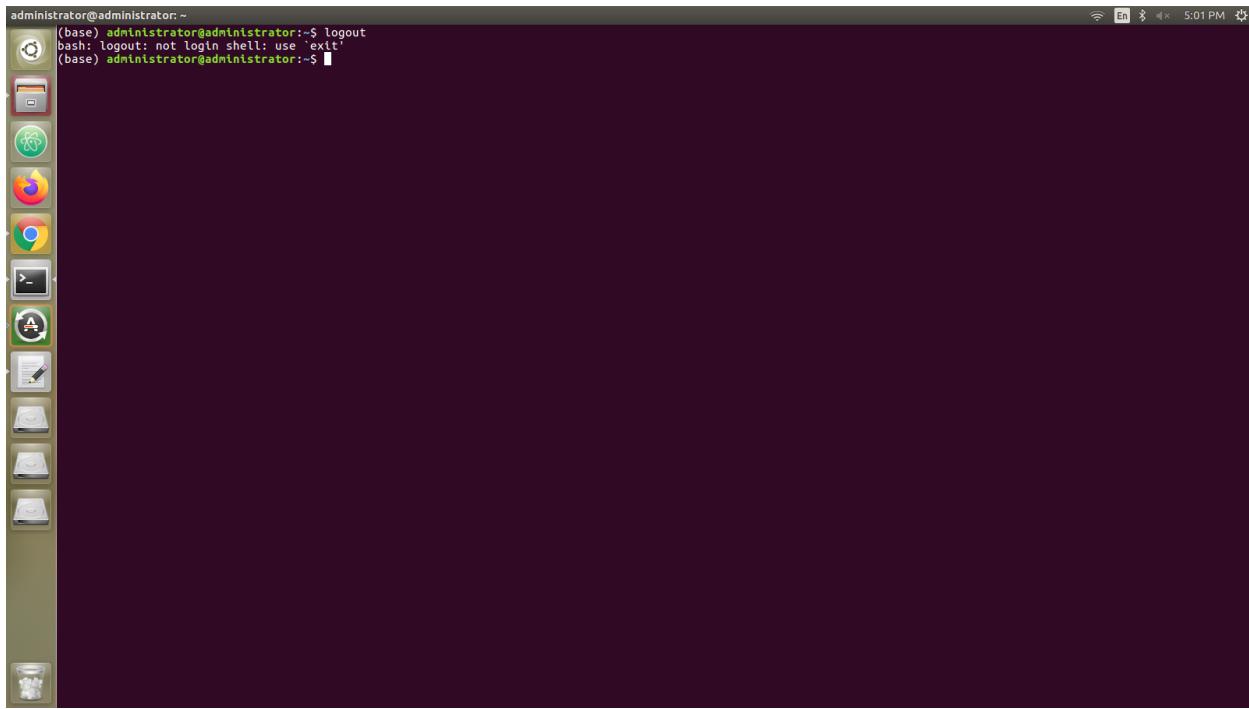
```
administrator@administrator:~/U20CS034$ mpstat
(base) administrator@administrator:~/U20CS034/DS$ mpstat
Linux 4.4.0-210-generic (administrator)           Wednesday 02 August 2023      _x86_64_        (4 CPU)
05:31:00  IST  CPU  %usr   %nice   %sys %iowait   %irq  %soft  %steal  %guest  %gnice  %idle
05:31:00  IST  all  51.55  0.13  0.85   1.72   0.00   0.04   0.00   0.00   0.00   45.72
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS$ tree
(base) administrator@administrator:~/U20CS034/DS$ .
├── date.png
├── ls.png
└── pattern.txt
text.txt

0 directories, 4 files
(base) administrator@administrator:~/U20CS034/DS$ mkdir screenshot
(base) administrator@administrator:~/U20CS034/DS$ tree
.
├── date.png
├── ls.png
├── pattern.txt
└── screenshot
    └── text.txt

1 directory, 4 files
(base) administrator@administrator:~/U20CS034/DS$
```





```
administrator@administrator:~  
Administrator@Administrator:~$ help  
GNU bash, version 4.3.48(1)-release (x86_64-pc-linux-gnu)  
These shell commands are defined internally. Type `help' to see this list.  
Type `help name' to find out more about the function `name'.  
Use `info bash' to find out more about the shell in general.  
Use `man -k' or `info' to find out more about commands not in this list.  
  
A star (*) next to a name means that the command is disabled.  
  
job_spec [&]  
(( expression ))  
. filename [arguments]  
:  
[ arg... ]  
[[ expression ]]  
attn [-p] [name[=value] ... ]  
bg [job_spec ...]  
bind [-t gsvSPVX] [-m keymap] [-f filename] [-u name] [-r keyseq] [-x ke>  
break [n]  
builtin [shell-builtin arg ...]  
caller [expr]  
case WORD in [PATTERN || PATTERN]...) COMMANDS ;;;...) esac  
cd [-L|-P [-e]] [-@] [dir]  
command [-pVv] command [arg ...]  
compgen [-abcdfgjkusu] [-o option] [-A action] [-G globpat] [-W wordlist] [-F >  
complete [-abcdfgjkusu] [-pr] [-D] [-o option] [-A action] [-G globpat] [-W wor  
comptop [-o option] [-D] [name ...]  
continue [n]  
coproc [NAME] command [ redirections ]  
declare [-A|F|gInnrxtu] [-p] [name[=value] ...]  
dirs [-clpv] [-N] [-N]  
disown [-h] [-ar] [jobspec ...]  
echo [-ne] [arg ...]  
enable [-a] [-dhis] [-f filename] [name ...]  
eval [arg ...]  
exec [-a] [a-name] [command [arguments ...]] [ redirection ... ]  
exit [n]  
export [-fn] [name[=value] ...] or export -p  
false  
fc [-e ename] [-lnr] [first] [last] or fc -s [pat=rep] [command]  
fg [job spec]  
for NAME [in WORDS ...] ; do COMMANDS; done  
for (( exp1; exp2; exp3 )); do COMMANDS; done  
function name [ COMMANDS ; ] or name () { COMMANDS ; }  
getopts optstring name [arg]  
hash [-lr] [-p pathname] [-dt] [name ...]  
help [-dns] [pattern ...]  
(base) Administrator@Administrator:~$
```

```
administrator@administrator:~/U20CS034/DS$ grep 'Hello SVNIT' pattern.txt text.txt
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS$ find
./ls.png
./pattern.txt
./date.png
./temp.txt
./text.txt
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS$ du text.txt
8    text.txt
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ cat pattern.txt
Hello SVNIT
Hello
(base) administrator@administrator:~/U20CS034/DS$ cat temp.txt
Hello
(base) administrator@administrator:~/U20CS034/DS$ diff pattern.txt temp.txt
1c1
< Hello SVNIT
...
> Hello
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ df text.txt
Filesystem 1K-blocks Used Available Use% Mounted on
/dev/sda6 284778040 22973112 247315944 9% /
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~  
(base) administrator@administrator:~$ date  
Wed Aug 2 16:19:38 IST 2023  
(base) administrator@administrator:~$
```

```
administrator@administrator:~/U20CS034$ cd DS  
(base) administrator@administrator:~/U20CS034/DS$ ls  
date.png ls.png pattern.txt temp.txt text.txt  
(base) administrator@administrator:~/U20CS034/DS$ cd ..  
(base) administrator@administrator:~/U20CS034$ cp ./DS/text.txt ./  
(base) administrator@administrator:~/U20CS034$ tree  
.:  
+-- DS  
|   |-- date.png  
|   |-- ls.png  
|   |-- pattern.txt  
|   |-- temp.txt  
|   `-- text.txt  
1 directory, 6 files  
(base) administrator@administrator:~/U20CS034$ clear  
(base) administrator@administrator:~/U20CS034$
```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ cmp pattern.txt temp.txt
pattern.txt temp.txt differ: byte 6, line 1
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034$ cd DS
(base) administrator@administrator:~/U20CS034/DS$ clear
```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ chown root text.txt  
chown: changing ownership of 'text.txt': Operation not permitted  
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS$ (base) administrator@administrator:~/U20CS034/DS$ ls -l text.txt  
-rw-rw-r-- 1 administrator administrator 6562 Aug 2 16:40 text.txt  
(base) administrator@administrator:~/U20CS034/DS$ chmod -x text.txt  
(base) administrator@administrator:~/U20CS034/DS$ ls -l text.txt  
-r--r--r-- 1 administrator administrator 6562 Aug 2 16:40 text.txt  
(base) administrator@administrator:~/U20CS034/DS$
```

The screenshot shows a Linux desktop environment with a dark theme. On the left, there is a vertical application menu bar containing 15 icons, likely for system tools and utilities. The main workspace is a terminal window titled '(base)' with the command 'cd DS' entered. The status bar at the bottom shows the date and time as '5:13 PM'. The top right corner includes standard system icons for battery, signal strength, and user status.

```
administrator@administrator:~/U20CS034/DS
(base) administrator@administrator:~$ cd U20CS034
(base) administrator@administrator:~/U20CS034$ cd DS
(base) administrator@administrator:~/U20CS034/DS$ cat text.txt
Hello SVNIT
(base) administrator@administrator:~/U20CS034/DS$
```

```
administrator@administrator:~/U20CS034/DS
(base) administrator@administrator:~/U20CS034/DS$ apt-get update
Reading package lists... Done
W: chmod 0700 of directory /var/lib/apt/lists/partial failed - SetupAPTPartialDirectory (1: Operation not permitted)
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
(base) administrator@administrator:~/U20CS034/DS$
```