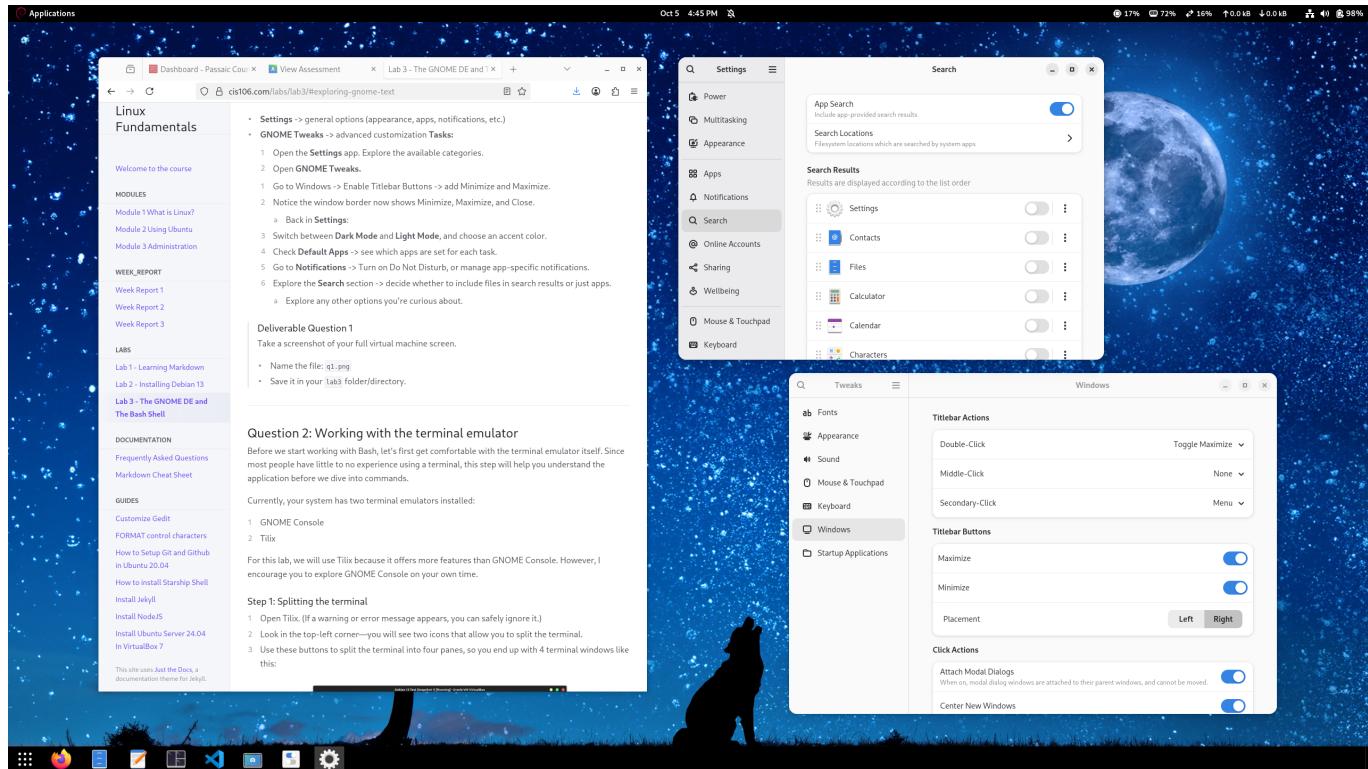
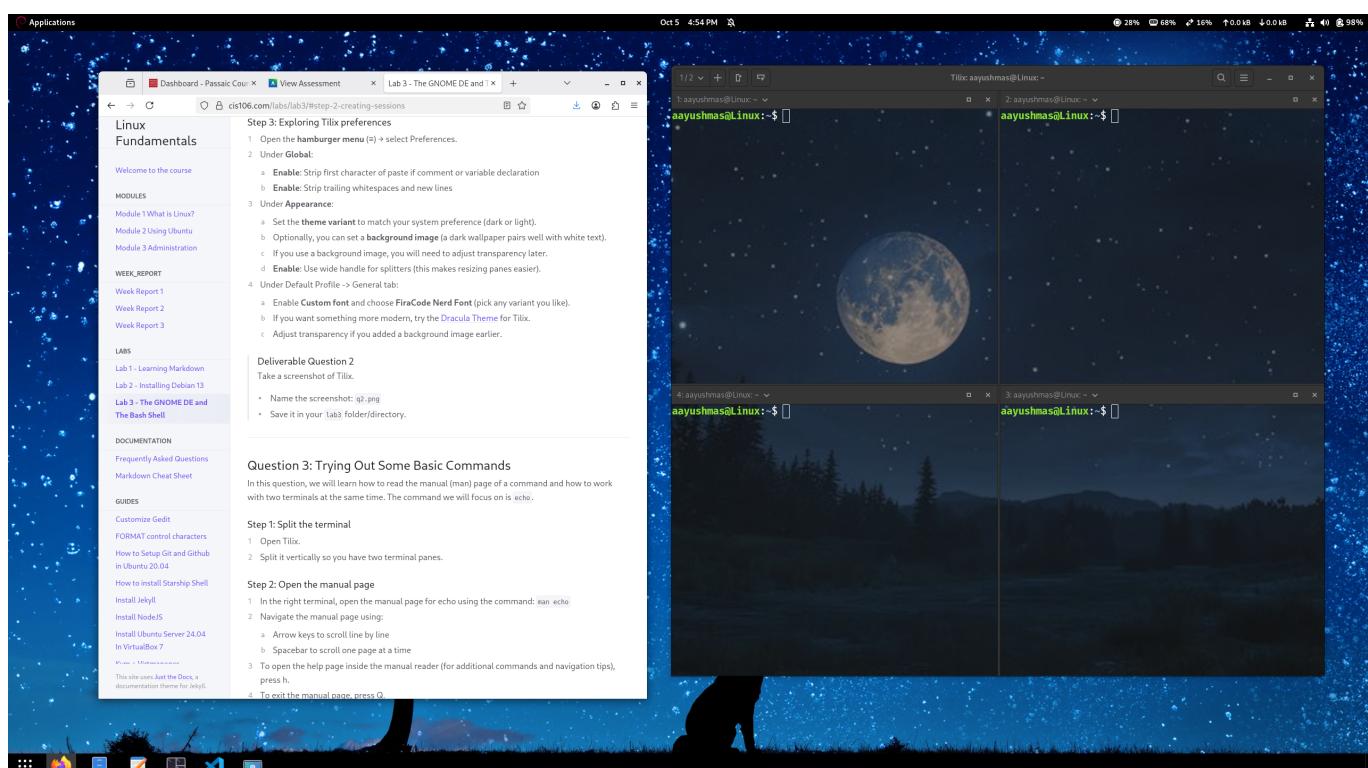


Lab 3 Submission

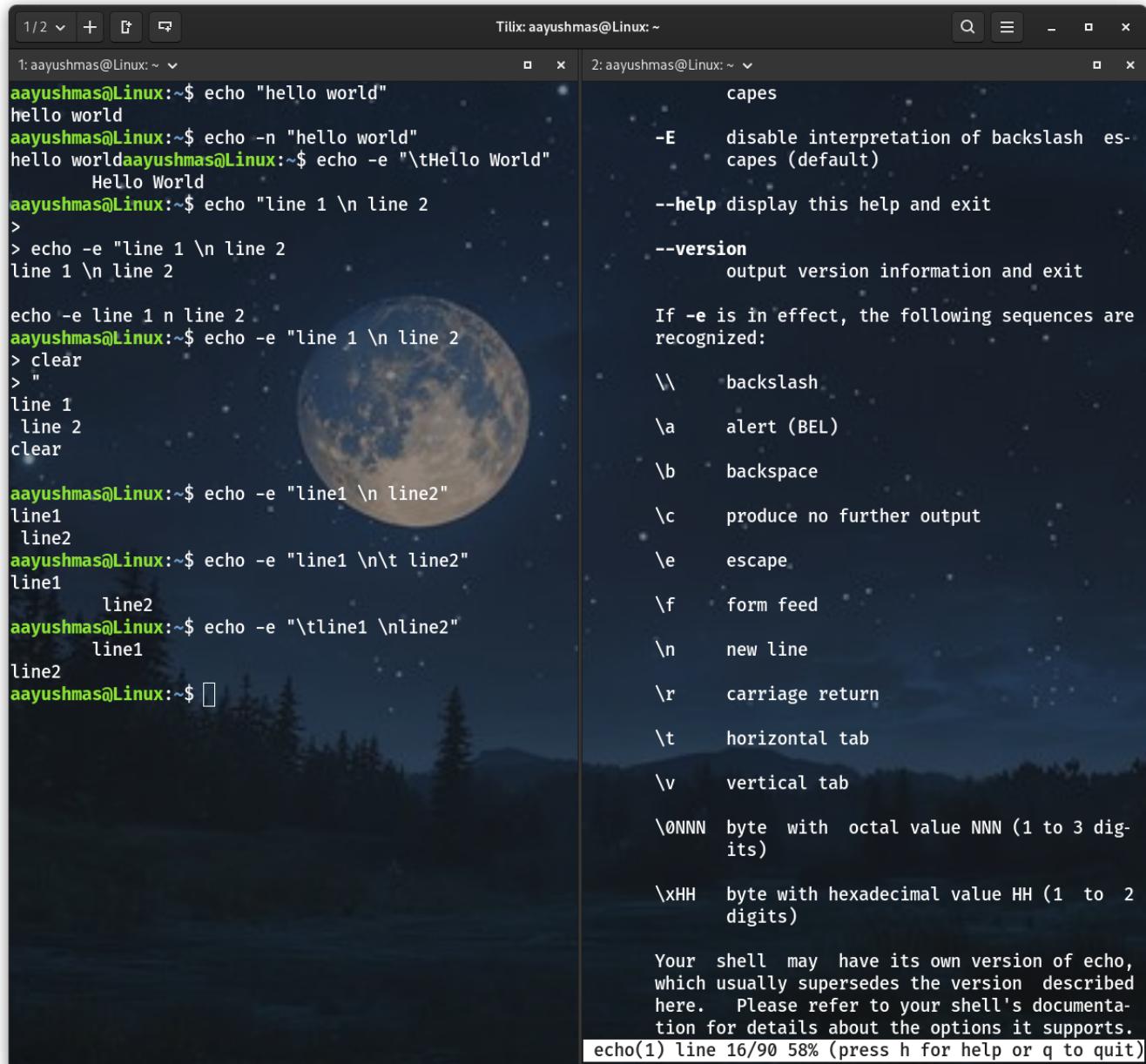
Question 1



Question 2



Question 3



```
1: aayushmas@Linux:~$ echo "hello world"
hello world
aayushmas@Linux:~$ echo -n "hello world"
hello worldaayushmas@Linux:~$ echo -e "\tHello World"
    Hello World
aayushmas@Linux:~$ echo "line 1 \n line 2"
>
> echo -e "line 1 \n line 2
line 1 \n line 2

echo -e line 1 \n line 2
aayushmas@Linux:~$ echo -e "line1 \n line2"
line1
line2
aayushmas@Linux:~$ echo -e "line1 \n\t line2"
line1
    line2
aayushmas@Linux:~$ echo -e "\tline1 \n\nline2"
    line1
line2
aayushmas@Linux:~$ 
```

2: aayushmas@Linux:~ capes
-E disable interpretation of backslash escapes (default)
--help display this help and exit
--version output version information and exit
If -e is in effect, the following sequences are recognized:
\\" backslash
\a alert (BEL)
\b backspace
\c produce no further output
\e escape
\f form feed
\n new line
\r carriage return
\t horizontal tab
\v vertical tab
\0NNN byte with octal value NNN (1 to 3 digits)
\xHH byte with hexadecimal value HH (1 to 2 digits)
Your shell may have its own version of echo, which usually supersedes the version described here. Please refer to your shell's documentation for details about the options it supports.

echo(1) line 16/90 58% (press h for help or q to quit)

Challenge Question

1:aayushmas@Linux ~ \$ free

```
total used free shared buff/cache available
Mem: 4016024 2696416 505532 277688 1329652 1319608
Swap: 2715644 430016 2285628
```

2:aayushmas@Linux ~ \$ free -h -line

```
SwapUse 419Mi CachUse 1.3Gi MemUse 2.6Gi MemFree 481Mi
```

free: option requires an argument -- 's'.

Usage:
free [options]

Options:

- b, --bytes show output in bytes
- kilo show output in kilobytes
- mega show output in megabytes
- giga show output in gigabytes
- tbo Show output in terabytes
- peta show output in petabytes
- k, --kibi show output in kibibytes
- m, --mebi show output in mebibytes
- g, --gibi show output in gibibytes
- tebi show output in tebibytes
- pebi show output in pebibytes
- h, --human show human-readable output
- si use powers of 1000 not 1024
- l, --lohi show detailed low and high memory statistics
- l, --line Show output on a single line
- t, --total Show total for RAM + swap
- v, --committed show committed memory and commit limit
- s N, --seconds N repeat printing every N seconds
- c N, --count N repeat printing N times, then exit
- w, --wide wide output

--help display this help and exit
-V, --version output version information and exit

For more details see free(1).

aayushmas@Linux ~ \$ free -s --human --line

free: seconds argument failed: '--human': Invalid argument

aayushmas@Linux ~ \$ free -s -l

free: seconds argument failed: '-l': Invalid argument

aayushmas@Linux ~ \$ free --human --line

```
SwapUse 419Mi CachUse 1.3Gi MemUse 2.6Gi MemFree 481Mi
```

aayushmas@Linux ~ \$ free --human --si --line

```
SwapUse 440M CachUse 1.2G MemUse 2.8G MemFree 490M
```

aayushmas@Linux ~ \$

-h, --human
Show all output fields automatically scaled to shortest three digit unit and display the units of print out. Following units are used.
B = bytes
Ki = kibibyte
Mi = mebibyte
Gi = gibibyte
Ti = tebibyte
Pi = pebibyte

If 'f' unit is missing, and you have exhibyte or Ram or swap, the number is in tebibytes and columns might not be aligned with header.

-w, --wide
Switch to the wide mode. The wide mode produces lines longer than 80 characters. In this mode buffers and cache are reported in two separate columns.

-c, --count count
Display the result count times. Requires the -s option.

-l, --lohi
Show detailed low and high memory statistics.

-L, --line
Show output on a single line, often used with the -s option to show memory statistics repeatedly.

-s, --seconds delay
Continuously display the result delay seconds apart. You may actually specify any floating point number for delay using either . or , for decimal point. usleep(3) is used for microsecond resolution delay times.

--si Use kilo, mega, giga etc (power of 1000) instead of kibi, mebi, gibi (power of 1024).

-t, --total
Display a line showing the column totals.

-v, --committed
Display a line showing the memory commit

Manual page free(1) line 85/163 85% (press h for help or q to quit)

1:aayushmas@Linux ~ \$ uname -s -r -v -o

```
Linux 6.12.43+deb13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1
2.43-1 (2025-08-27) GNU/Linux
```

2:aayushmas@Linux ~ \$

UNAME(1) User Commands UNAME(1)

NAME

uname -- print system information

SYNOPSIS

uname [OPTION]...

DESCRIPTION

Print certain system information. With no OPTION, same as **-s**.

-a, --all
print all information, in the following order, except omit **-p** and **-i** if unknown:

-s, --kernel-name
print the kernel name

-n, --nodename
print the network node hostname

-r, --kernel-release
print the kernel release

-v, --kernel-version
print the kernel version

-m, --machine
print the machine hardware name

-p, --processor
print the processor type (non-portable)

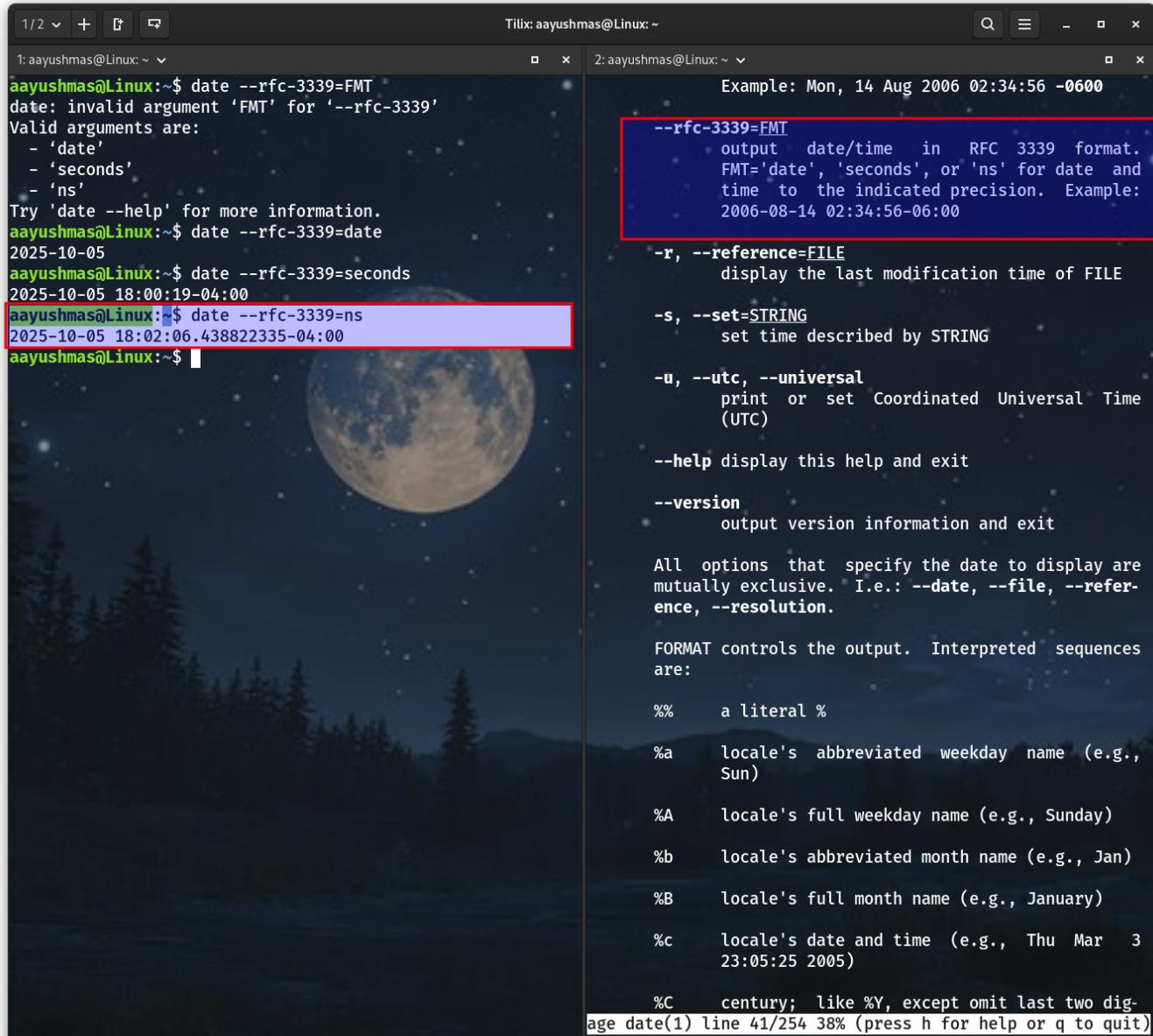
-i, --hardware-platform
print the hardware platform (non-portable)

-o, --operating-system
print the operating system

--help display this help and exit

--version output version information and exit

page uname(1) line 1/72 59% (press h for help or q to quit)



The screenshot shows two terminal windows side-by-side. The left window (Tilix) has a dark background with a night sky and trees. It displays the following command and its output:

```
aayushmas@Linux:~$ date --rfc-3339=FMT
date: invalid argument 'FMT' for '--rfc-3339'
Valid arguments are:
- 'date'
- 'seconds'
- 'ns'
Try 'date --help' for more information.
aayushmas@Linux:~$ date --rfc-3339=date
2025-10-05
aayushmas@Linux:~$ date --rfc-3339=seconds
2025-10-05 18:00:19-04:00
aayushmas@Linux:~$ date --rfc-3339=ns
2025-10-05 18:02:06.438822335-04:00
aayushmas@Linux:~$
```

The command `date --rfc-3339=ns` is highlighted with a red box.

The right window (Tilix) also has a dark background with a night sky and trees. It displays the man page for the `date` command, specifically the section for the `--rfc-3339` option. The output is as follows:

```
Example: Mon, 14 Aug 2006 02:34:56 -0600
--rfc-3339=FMT
          output date/time in RFC 3339 format.
          FMT='date', 'seconds', or 'ns' for date and
          time to the indicated precision. Example:
          2006-08-14 02:34:56-06:00

-r, --reference=FILE
          display the last modification time of FILE

-s, --set=STRING
          set time described by STRING

-u, --utc, --universal
          print or set Coordinated Universal Time
          (UTC)

--help display this help and exit

--version
          output version information and exit

All options that specify the date to display are
mutually exclusive. I.e.: --date, --file, --refer-
ence, --resolution.

FORMAT controls the output. Interpreted sequences
are:

%%      a literal %

%a      locale's abbreviated weekday name (e.g.,
Sun)

%A      locale's full weekday name (e.g., Sunday)

%b      locale's abbreviated month name (e.g., Jan)

%B      locale's full month name (e.g., January)

%c      locale's date and time (e.g., Thu Mar  3
23:05:25 2005)

%C      century; like %Y, except omit last two dig-
age date(1) line 41/254 38% (press h for help or q to quit)
```