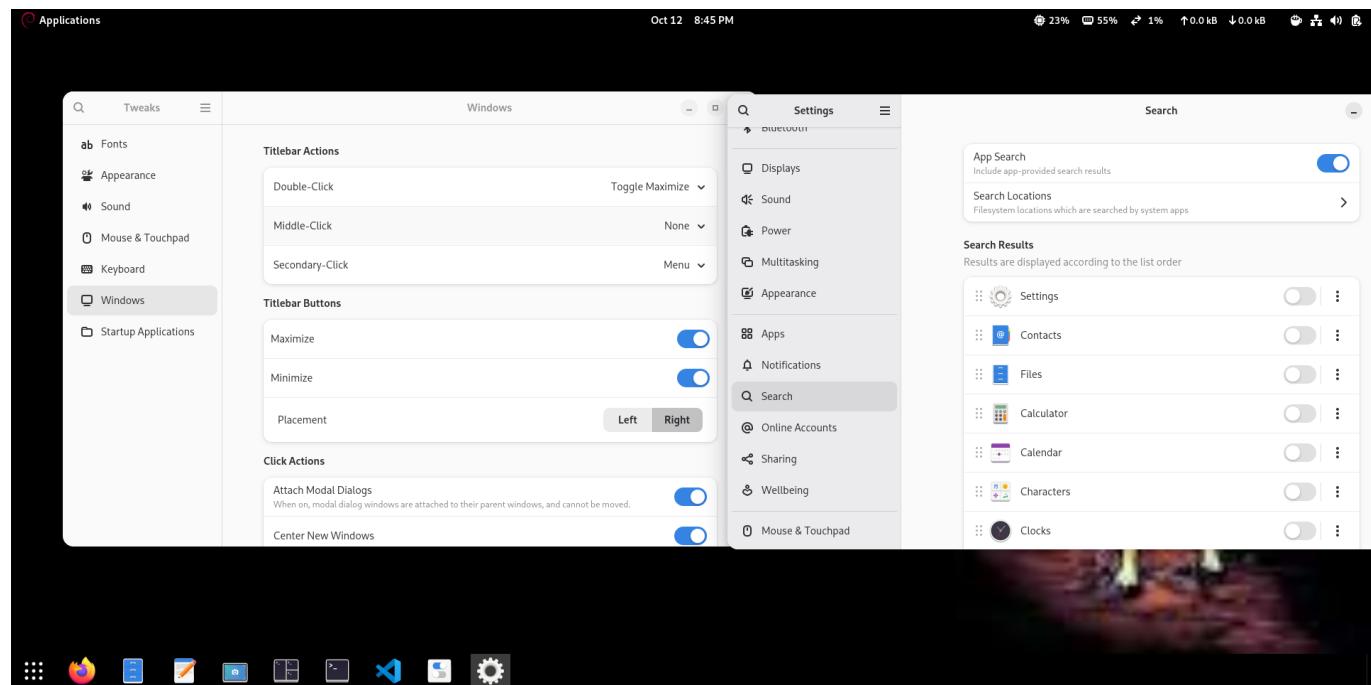
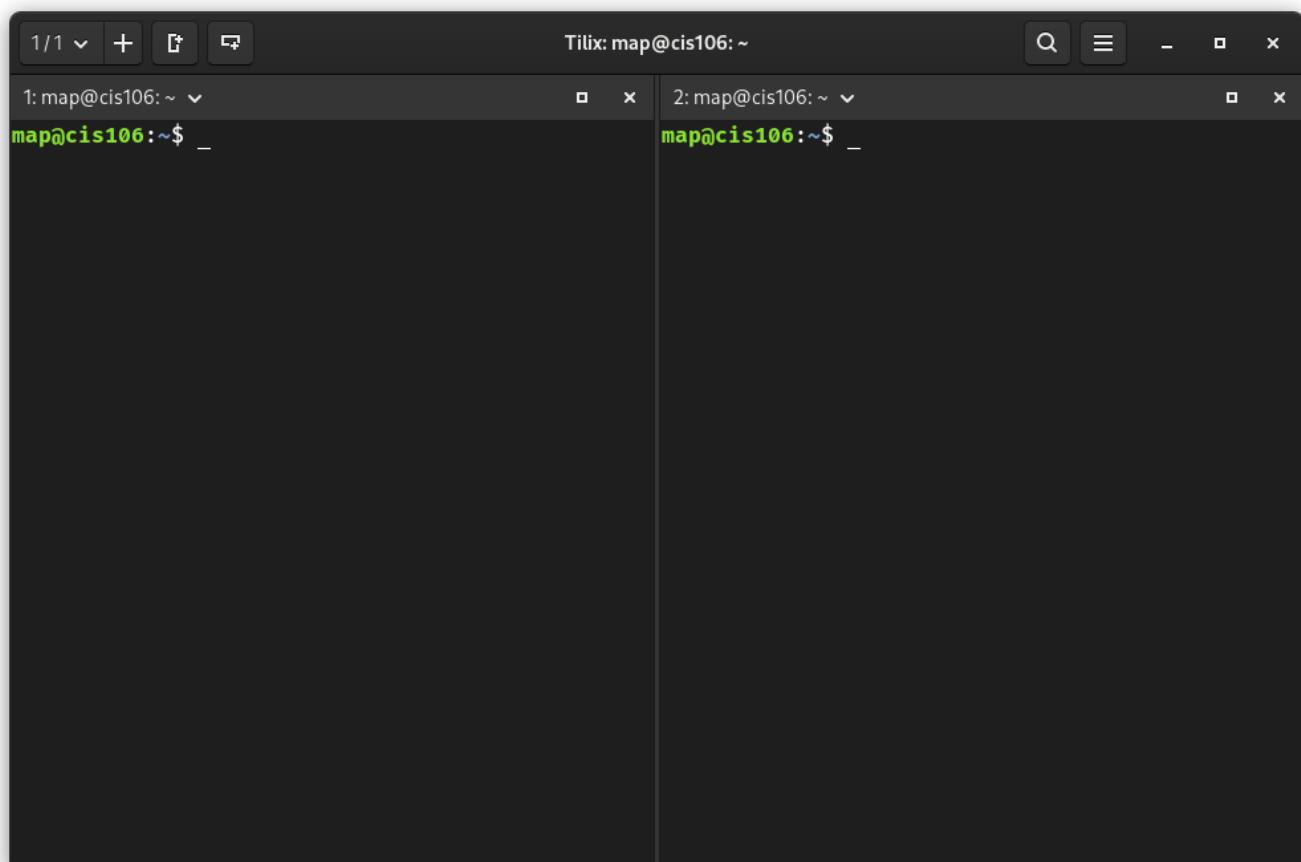


# Lab 3 Submission

## Question 1



## Question 2



## Question 3

The screenshot shows two terminal windows side-by-side. The left window (Tilix: map@cis106: ~) displays several examples of the echo command using the -e option to print escape sequences:

```
map@cis106:~$ echo "Hello World"
Hello World
map@cis106:~$ echo -n "hello world"
hello worldmap@cis106:~$ echo -e "\tHello\tWorld
"
      Hello    Worrlde
map@cis106:~$ echo "line1 line2"
line1 line2
map@cis106:~$ echo -e "line 1\nline2"
line 1
line2
map@cis106:~$ echo -e "line 1\n\tline2"
line 1
line2
map@cis106:~$ _
```

The right window (Tilix: map@cis106: ~) lists the escape sequences recognized by the -e option:

If <b>-e</b> 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)

At the bottom of the right window, status information is displayed: line 28/97 47% (press h for help or q to quit).

## Challenge Question

The screenshot shows two terminal windows side-by-side. The left terminal window (Tilix: map@cis106:~) displays the output of the command `free -h`. The right terminal window (Tilix: map@cis106:~) displays the manual page for the `free` command, specifically the help section. The help text includes options for kilobytes, megabytes, gigabytes, terabytes, petabytes, and bytes, along with unit conversions and a note about missing units. The bottom status bar of the right terminal indicates it is at line 97/221 with a 60% completion rate.

```
map@cis106:~$ free -h
total        used       free     shared  buff/cache   available
Mem:      3.8Gi     1.7Gi    650Mi     38Mi     1.8Gi     2.1Gi
Swap:     2.1Gi     2.2Mi    2.1Gi

map@cis106:~$
```

```
--kilo Display the amount of
         memory in kilobytes. Im-
         plies --si.

--mega Display the amount of
         memory in megabytes. Im-
         plies --si.

--giga Display the amount of
         memory in gigabytes. Im-
         plies --si.

--tera Display the amount of
         memory in terabytes. Im-
         plies --si.

--petra Display the amount of
         memory in petabytes. Im-
         plies --si.

-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 unit is missing, and
you have exbibyte of RAM
Manual page free(1) line 97/221 60% (press h for help or q to quit)
```

The right terminal window also shows the manual page for the `uname` command, which lists various options for printing system information. The bottom status bar of the right terminal indicates it is at line 5/63 with a 61% completion rate.

```
map@cis106:~$ uname -a
Linux cis106 6.12.43+deb13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.12.43-1 (2025-08-27) x86_64 GNU/Linux
map@cis106:~$
```

```
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
Manual page uname(1) line 5/63 61% (press h for help or q to quit)
```

Oct 12 9:42 PM  
Tilix: map@cis106: ~  
Tilix: map@cis106: ~  
1:map@cis106:~  
map@cis106:~\$ date --rfc-3339=ns  
2025-10-12 21:42:01.606941650-04:00  
map@cis106:~\$ \_  
  
-R, --rfc-email  
 output date and time in RFC 5322 format. Example: Mon, 14 Aug 2006 02:34:56  
 -0000  
--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, --reference, --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)  
Manual page date(1) line 33 (press h for help or q to quit)