

Question 1

Question 1.1

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1/1  +  [?] [x]  Tilix: luella@Letranger: ~  [Q] [≡] [–] [□] [x]

1:luella@Letranger: ~  [□] [x]

pentobi/noble 23.1-1build2 amd64
  clone of the strategy board game Blokus

petris/noble 1.0.1-11 amd64
  Peter's Tetris - a Tetris(TM) clone

quadrappel/noble 1:40.2-1build2 amd64
  popular Russian game, similar to Tetris

stax/noble 1.37-2build2 amd64
  collection of puzzle games similar to Tetris Attack

termtris/noble 1.3-1ubuntu1 amd64
  Tetris game for ANSI/VT220 terminals

tetrinet-client/noble 0.11+CVS20070911-2.1 amd64
  textmode client for tetrinet, a multiplayer tetris-like game

tetrinet-server/noble 0.11+CVS20070911-2.1 amd64
  server for tetrinet, a multiplayer tetris-like game

tetrinetx/noble 1.13.16-15build1 amd64
  game server for Tetrinet

tint/noble,now 0.07 amd64 [installed]
  Tetris clone for text based terminal

vim-scripts/noble,noble 20210124.2 all
  plugins for vim, adding bells and whistles

vitetris/noble 0.59.1-2 amd64
  Virtual terminal *tris clone

xwelltris/noble 1.0.1-18 amd64
  3D Tetris like popular game similar to Welltris

luella@Letranger:~$ apt search --names-only tetris
Sorting... Done
Full Text Search... Done
games-tetris/noble,noble 5 all
  Debian's tetris-like games

vitetris/noble 0.59.1-2 amd64
  Virtual terminal *tris clone

luella@Letranger:~$
```

Question 1.2

```
1/1/ + + + + + Tilix: luella@Letranger: ~  
1: luella@Letranger: ~  
luella@Letranger:~$ sudo apt show bastet  
Package: bastet  
Version: 0.43-7build1  
Priority: optional  
Section: universe/games  
Origin: Ubuntu  
Maintainer: Ubuntu Developers <ubuntu-devel-discuss@lists.ubuntu.com>  
Original-Maintainer: Debian Games Team <pkg-games-devel@lists.alioth.debian.org>  
Bugs: https://bugs.launchpad.net/ubuntu/+filebug  
Installed-Size: 214 KB  
Depends: debconf (>= 0.5) | debconf-2.0, libboost-program-options1.83.0 (>= 1.83)  
, lib6 (>= 2.34), libgcc-s1 (>= 3.4), libcurses6 (>= 6), libstdc++6 (>= 13.1),  
libtinfo6 (>= 6)  
Homepage: http://fph.altervista.org/prog/bastet.shtml  
Download-Size: 75.1 KB  
APT-Manual-Installed: yes  
APT-Sources: http://us.archive.ubuntu.com/ubuntu noble/universe amd64 Packages  
Description: ncurses Tetris clone with a bastard algorithm  
Bastet ("bastard Tetris") is a free clone of Tetris which tries to  
compute how useful blocks are and gives you the worst possible brick.  
Playing bastet can be a painful experience, especially if you usually  
make "canyons" and wait for the long I-shaped block.  
  
2: luella@Letranger: ~  
luella@Letranger:~$ sudo apt show blockattack  
[sudo] password for luella:  
Package: blockattack  
Version: 2.8.0-1build1  
Priority: optional  
Section: universe/games  
Origin: Ubuntu  
Maintainer: Ubuntu Developers <ubuntu-devel-discuss@lists.ubuntu.com>  
Original-Maintainer: Debian Games Team <pkg-games-devel@lists.alioth.debian.org>  
Bugs: https://bugs.launchpad.net/ubuntu/+filebug  
Installed-Size: 6,838 KB  
Depends: libboost-program-options1.83.0 (>= 1.83.0), lib6 (>= 2.38), libfmt9  
(>= 9.1.0+ds1), libgcc-s1 (>= 3.3.1), libphysfs1 (>= 3.0.2), libstdl2-2.0-0 (>= 2.0.5),  
libstdl2-image-2.0-0 (>= 2.0.5), libstdl2-mixer-2.0-0 (>= 2.6.0), libstdl2-tt  
f-2.0-0 (>= 2.0.15), libstdc++6 (>= 13.1)  
Homepage: https://blockattack.net/  
Download-Size: 6,446 KB  
APT-Manual-Installed: yes  
APT-Sources: http://us.archive.ubuntu.com/ubuntu noble/universe amd64 Packages  
Description: puzzle game inspired by Tetris  
Block Attack is a puzzle/blockfall game inspired by Nintendo's Tetris Attack  
for the Super Nintendo. The game is pretty action packed for a puzzle game :-)  
.  
.  
1/1/ + + + + + Tilix: luella@Letranger: ~  
1: luella@Letranger: ~  
(Reading database ... 213324 files and directories currently installed.)  
Preparing to unpack .../0-cuyo-data-2.1.0-1build1_all.deb ...  
Unpacking cuyo-data (2.1.0-1build1) ...  
Selecting previously unselected package libmad0:amd64.  
Preparing to unpack .../1-libmad0_0.15.1b-10.2ubuntu1_amd64.deb ...  
Unpacking libmad0:amd64 (0.15.1b-10.2ubuntu1) ...  
Selecting previously unselected package libopenal-data.  
Preparing to unpack .../2-libopenal-data_1.13a1.23.1-4build1_all.deb ...  
Unpacking libopenal-data (1.1.23.1-4build1) ...  
Selecting previously unselected package libsndio7.0:amd64.  
Preparing to unpack .../3-lsndio7.0_1.9.0-0.3build1_amd64.deb ...  
Unpacking libsndio7.0:amd64 (1.9.0-0.3build1) ...  
Selecting previously unselected package libopenal:amd64.  
Preparing to unpack .../4-libopenal_1.13a1.23.1-4build1_amd64.deb ...  
Unpacking libopenal:amd64 (1.1.23.1-4build1) ...  
Selecting previously unselected package libmikmod3:amd64.  
Preparing to unpack .../5-libmikmod3_3.3.11.1-7build1_amd64.deb ...  
Unpacking libmikmod3:amd64 (3.3.11.1-7build1) ...  
Selecting previously unselected package libstdl1.2debian:amd64.  
Preparing to unpack .../6-libstdl1.2debian_1.2.68-2_amd64.deb ...  
Unpacking libstdl1.2debian:amd64 (1.2.68-2) ...  
Selecting previously unselected package libstdl-mixer1.2:amd64.  
Preparing to unpack .../7-libstdl-mixer1.2_1.2.12-18_amd64.deb ...  
Unpacking libstdl-mixer1.2:amd64 (1.2.12-18) ...  
Selecting previously unselected package cuyo.  
Preparing to unpack .../8-cuyo-2.1.0-1build1_amd64.deb ...  
Unpacking cuyo (2.1.0-1build1) ...  
Selecting previously unselected package blockout2.  
Preparing to unpack .../9-blockout2_2.5+dfsg1-1build3_amd64.deb ...  
Unpacking blockout2 (2.5+dfsg1-1build3) ...  
Setting up libstdl1.2debian:amd64 (1.2.68-2) ...  
Setting up cuyo-data (2.1.0-1build1) ...  
Setting up libsndio7.0:amd64 (1.9.0-0.3build3) ...  
Setting up libmad0:amd64 (0.15.1b-10.2ubuntu1) ...  
Setting up libopenal-data (1.1.23.1-4build1) ...  
Setting up libopenal:amd64 (1.1.23.1-4build1) ...  
Setting up libmikmod3:amd64 (3.3.11.1-7build1) ...  
Setting up libstdl-mixer1.2:amd64 (1.2.12-18) ...  
Setting up cuyo (2.1.0-1build1) ...  
Setting up blockout2 (2.5+dfsg1-1build3) ...  
Processing triggers for hicolor-icon-theme (0.17-2) ...  
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...  
Processing triggers for libc-bin (2.39-0ubuntu8.7) ...  
Processing triggers for man-db (2.12.0-4build2) ...  
Processing triggers for desktop-file-utils (0.27-2build1) ...  
luella@Letranger:~$
```

Question 1.3

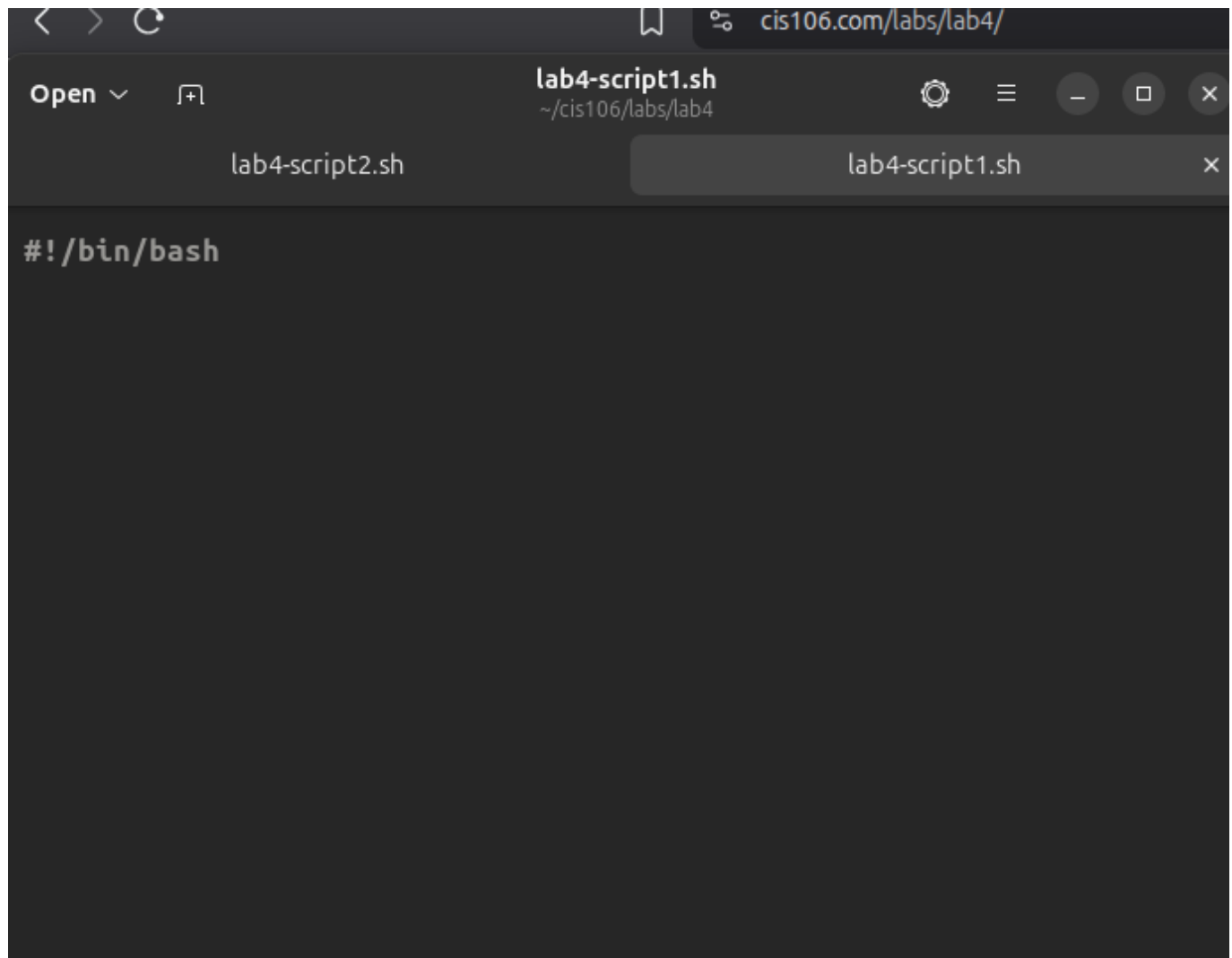
```
1:luella@Letranger:~  
Setting up libmad0:amd64 (0.15.1b-10.2ubuntu1) ...  
Setting up libopenal-data (1:1.23.1-4build1) ...  
Setting up libopenal1:amd64 (1:1.23.1-4build1) ...  
Setting up libmikmod3:amd64 (3.3.11.1-7build1) ...  
Setting up libsdl-mixer1.2:amd64 (1.2.12-18) ...  
Setting up cuyo (2.1.0-1build1) ...  
Setting up blockout2 (2.5+dfsg1-1build3) ...  
Processing triggers for hicolor-icon-theme (0.17-2) ...  
Processing triggers for gnome-menus (3.36.0-1.1ubuntu3) ...  
Processing triggers for libc-bin (2.39-0ubuntu8.7) ...  
Processing triggers for man-db (2.12.0-4build2) ...  
Processing triggers for desktop-file-utils (0.27-2build1) ...  
luella@Letranger:~$ sudo apt remove cuyo  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  cuyo-data libfmt9 libmodplug1 libopusfile0 libphysfs1 libsdl2-image-2.0-0  
  libsdl2-mixer-2.0-0 libsdl2-ttf-2.0-0  
Use 'sudo apt autoremove' to remove them.  
The following packages will be REMOVED:  
  cuyo  
0 upgraded, 0 newly installed, 1 to remove and 66 not upgraded.  
After this operation, 437 kB disk space will be freed.  
Do you want to continue? [Y/n] y  
(Reading database ... 214458 files and directories currently installed.)  
Removing cuyo (2.1.0-1build1) ...  
Processing triggers for hicolor-icon-theme (0.17-2) ...  
Processing triggers for gnome-menus (3.36.0-1.1ubuntu3) ...  
Processing triggers for desktop-file-utils (0.27-2build1) ...  
luella@Letranger:~$ sudo apt purge cuyo  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  cuyo-data libfmt9 libmodplug1 libopusfile0 libphysfs1 libsdl2-image-2.0-0  
  libsdl2-mixer-2.0-0 libsdl2-ttf-2.0-0  
Use 'sudo apt autoremove' to remove them.  
The following packages will be REMOVED:  
  cuyo*  
0 upgraded, 0 newly installed, 1 to remove and 66 not upgraded.  
After this operation, 0 B of additional disk space will be used.  
Do you want to continue? [Y/n] y  
(Reading database ... 214450 files and directories currently installed.)  
Purging configuration files for cuyo (2.1.0-1build1) ...  
luella@Letranger:~$
```

Question 1.4

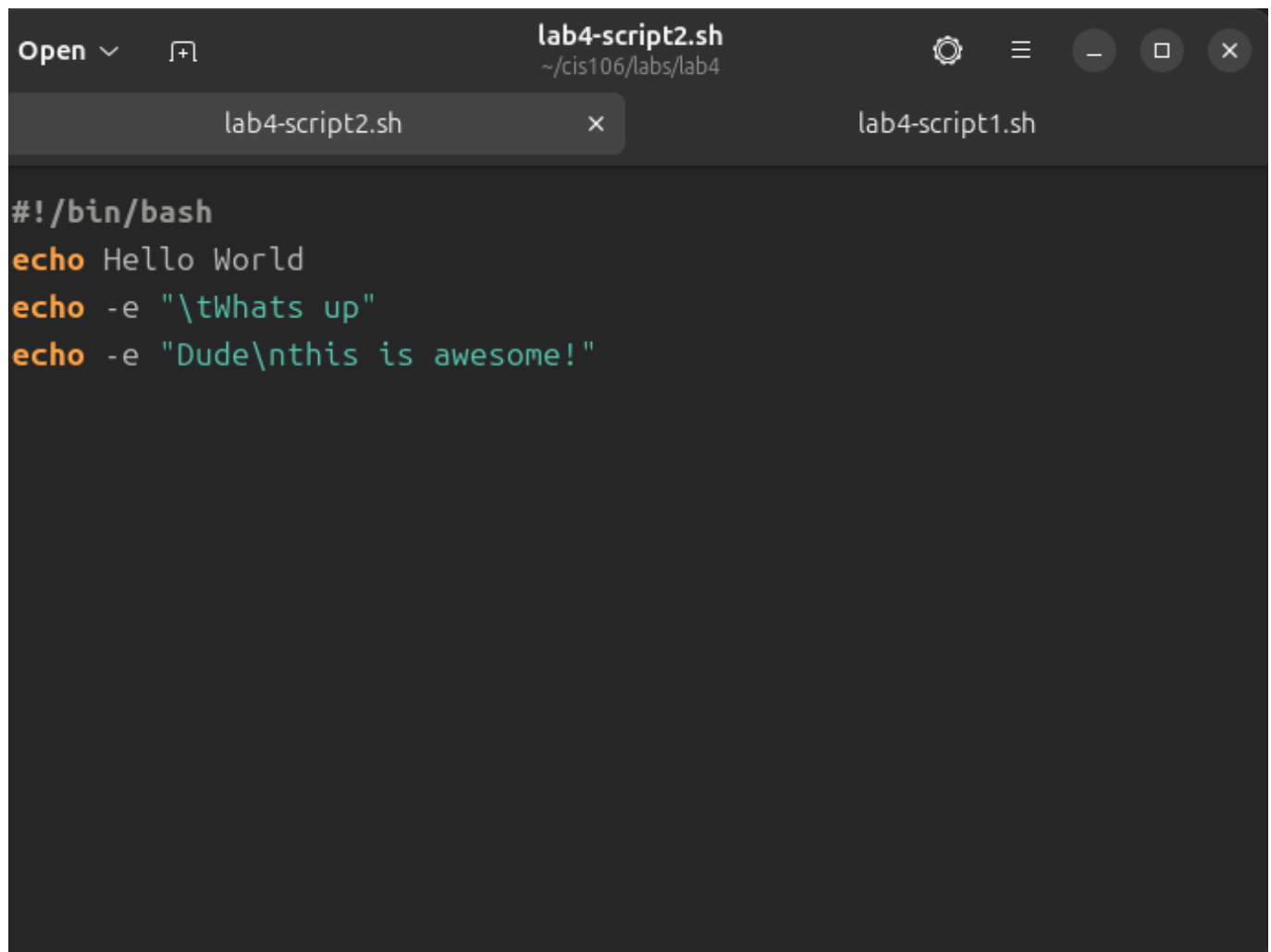
```
luella@Letranger:~$ sudo apt clean && sudo apt autoclean && sudo apt autoremove && sudo apt autopurge
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages will be REMOVED:
  cuyo-data libfmt9 libmodplug1 libopusfile0 libphysfs1 libsdl2-image-2.0-0
  libsdl2-mixer-2.0-0 libsdl2-ttf-2.0-0
0 upgraded, 0 newly installed, 8 to remove and 66 not upgraded.
After this operation, 7,071 kB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 214450 files and directories currently installed.)
Removing cuyo-data (2.1.0-1build1) ...
Removing libfmt9:amd64 (9.1.0+ds1-2) ...
Removing libsdl2-mixer-2.0-0:amd64 (2.8.0+dfsg-1build3) ...
Removing libmodplug1:amd64 (1:0.8.9.0-3build1) ...
Removing libopusfile0:amd64 (0.12-4build3) ...
Removing libphysfs1:amd64 (3.0.2-6build2) ...
Removing libsdl2-image-2.0-0:amd64 (2.8.2+dfsg-1build2) ...
Removing libsdl2-ttf-2.0-0:amd64 (2.22.0+dfsg-1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.7) ...
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 66 not upgraded.
luella@Letranger:~$
```

Question 2

Question 2.1



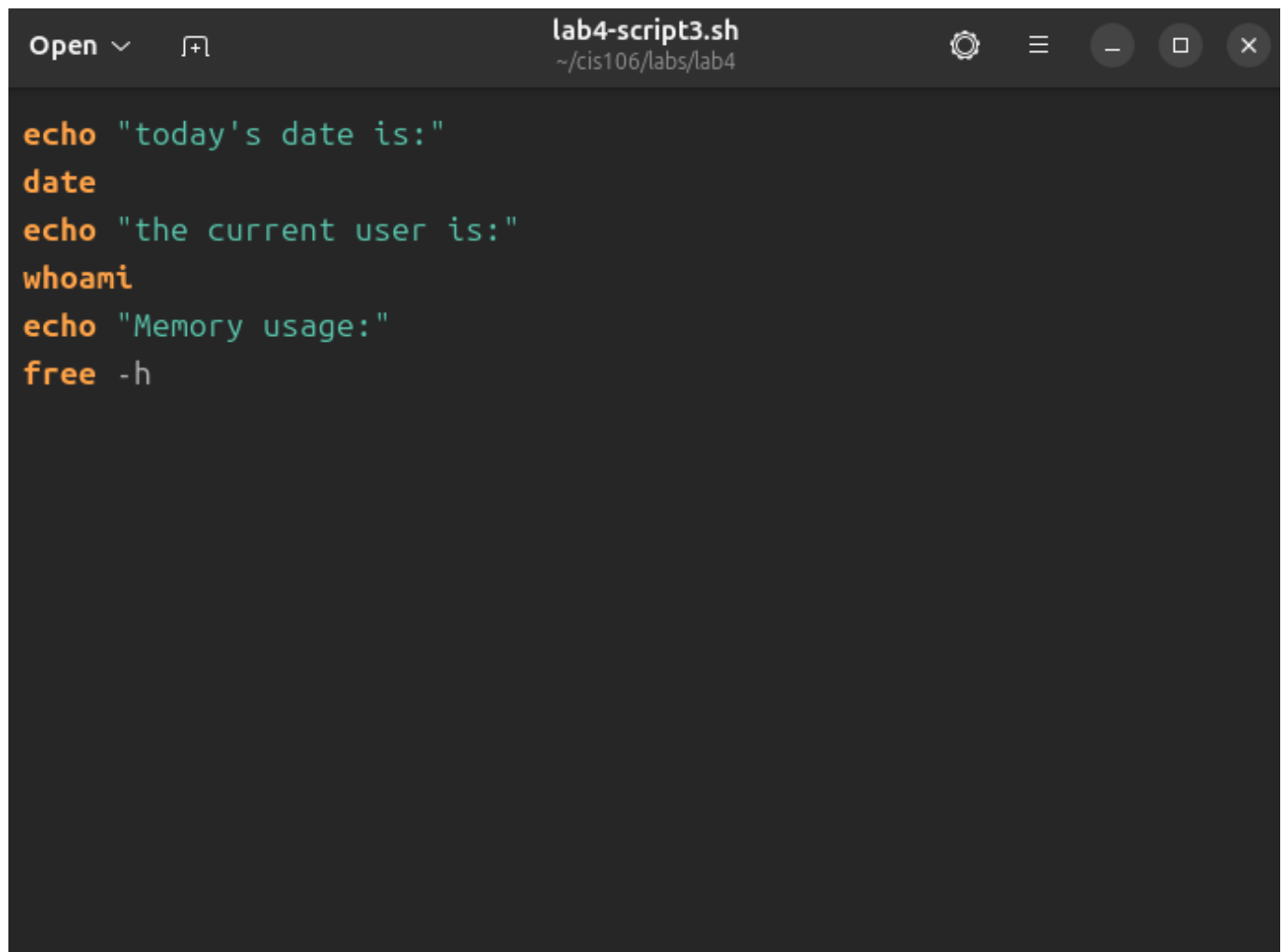
Question 2.2



The image shows a terminal window with a dark background. The title bar at the top reads "lab4-script2.sh" and shows the file path "~/cis106/labs/lab4". There are standard window control buttons (minimize, maximize, close) on the right. Below the title bar, there are two tabs: "lab4-script2.sh" (active) and "lab4-script1.sh". The terminal content shows a shell script with three lines:

```
#!/bin/bash
echo Hello World
echo -e "\tWhats up"
echo -e "Dude\nthis is awesome!"
```

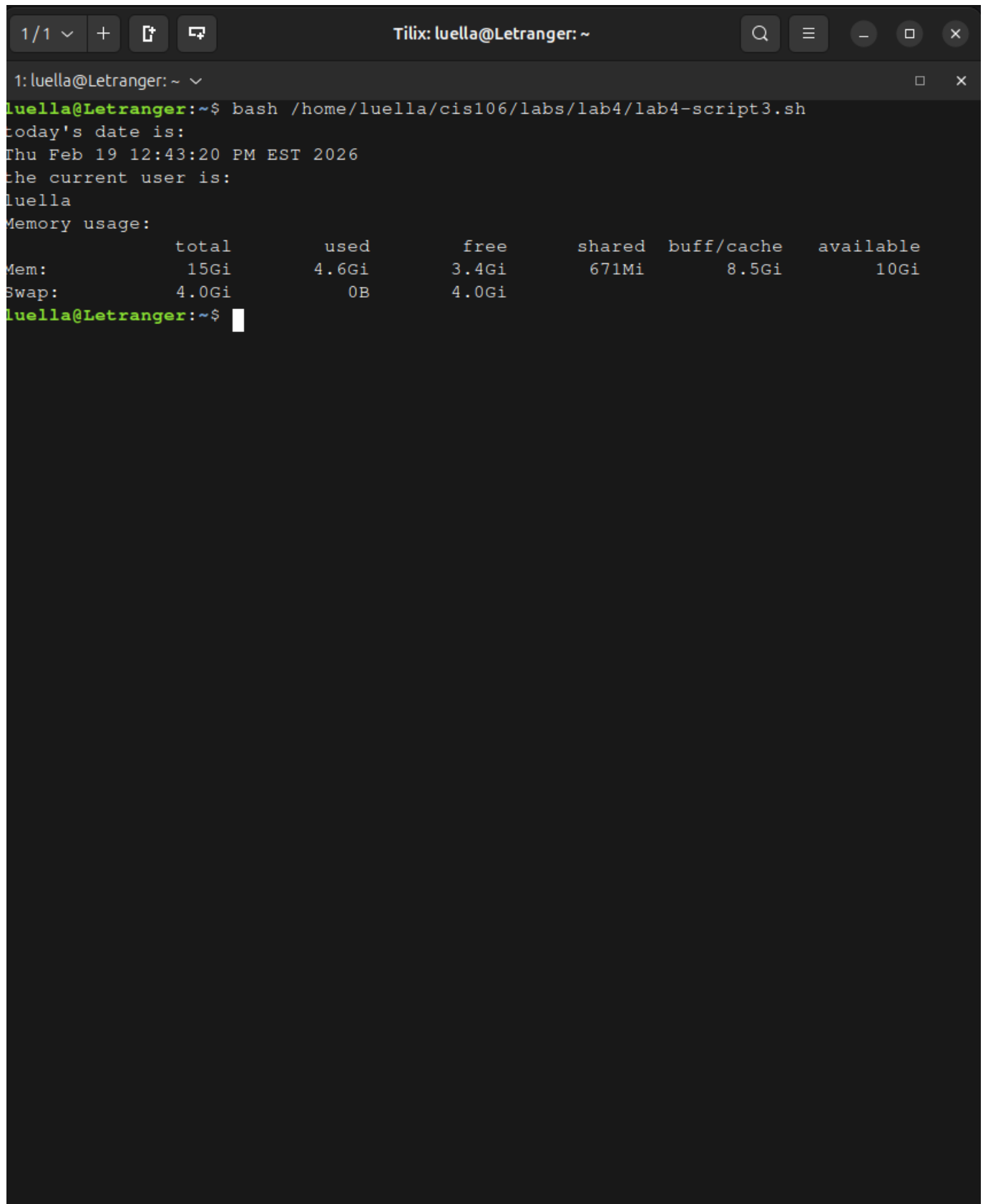
Question 2.3



```
lab4-script3.sh
~/cis106/labs/lab4

echo "today's date is:"
date
echo "the current user is:"
whoami
echo "Memory usage:"
free -h
```

Question 2.4

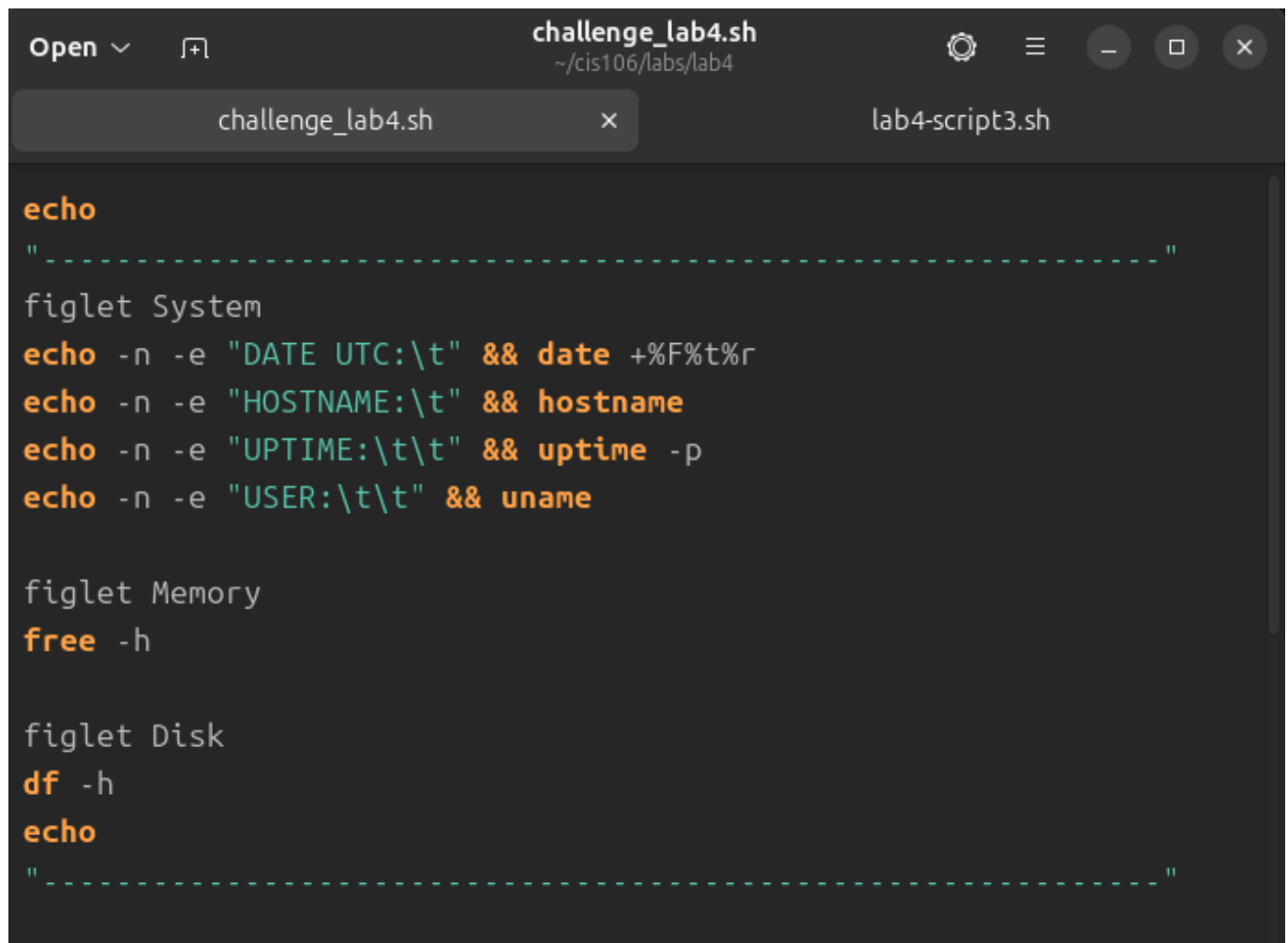


A terminal window titled "Tilix: luella@Letranger: ~" showing the execution of a script. The script prints the date, the current user, and memory usage. The memory usage is displayed as a table with columns: total, used, free, shared, buff/cache, and available. The rows show memory usage for Mem and Swap.

```
1/1 v + [copy] [paste]
Tilix: luella@Letranger: ~
1: luella@Letranger: ~ v
luella@Letranger:~$ bash /home/luella/cis106/labs/lab4/lab4-script3.sh
today's date is:
Thu Feb 19 12:43:20 PM EST 2026
the current user is:
luella
Memory usage:
      total      used      free      shared  buff/cache   available
Mem:    15Gi     4.6Gi     3.4Gi       671Mi      8.5Gi      10Gi
Swap:   4.0Gi       0B     4.0Gi
```

Question 3 (Challenge Question)

Question 3.1



The screenshot shows a terminal window with a dark background. The title bar at the top reads "challenge_lab4.sh" with a subtitle "~/cis106/labs/lab4". There are window control buttons (gear, menu, and three standard window buttons) on the right. Below the title bar, there are two tabs: "challenge_lab4.sh" (active) and "lab4-script3.sh". The terminal content is as follows:

```
echo
"-----"
figlet System
echo -n -e "DATE UTC:\t" && date +%F%t%r
echo -n -e "HOSTNAME:\t" && hostname
echo -n -e "UPTIME:\t\t" && uptime -p
echo -n -e "USER:\t\t" && uname

figlet Memory
free -h

figlet Disk
df -h
echo
"-----"
```

Question 3.2

[illegible]