

CS 279 - Week 4 Lab Exercise

Deadline

Due by the end of lab on 2022-09-15.

How to submit

- Submit the files specified below on <https://canvas.humboldt.edu>

Purpose

To practice with the `bash` shell's versions of local variables, shell interactive input, `if` statements, `for` loops, command-line arguments, and more.

Important notes

- Remember: On the public course web site, at the end of the **References** section, there is a handout about how to use `ssh` to connect to `nrs-projects.humboldt.edu` and how to use `sftp` to transfer files to and from `nrs-projects.humboldt.edu`.
- Work in PAIRS for this lab exercise:
 - two people at one computer,
 - one typing (driver),
 - one saying what to type (navigator),
 - both discussing along the way!

When done, the driver should e-mail the files to the navigator, so BOTH of you can EACH submit them.

Lab Exercise setup

- use `ssh` to connect to the one of your accounts on `nrs-projects.humboldt.edu`
- make and protect a directory `279lab4` using the commands:

```
mkdir 279lab4
chmod 700 279lab4
```

- go into that directory using:

```
cd 279lab4
```

Problem 1

FUN FACTS:

- `[-e filename]` # will be true if `filename` is the name of a file that currently exists
- `touch filename` # will create an empty file named `filename`

Write a `bash` shell script named `enter-file` or `enter-file.sh` (your choice!) that meets the following requirements:

- It should start with the line that is considered good style (and is a CS 279 course requirement), that specifies that this script should be executed using the `bash` shell.
- After that, after a blank line, put in one or more **comments** that include:
 - that this is part of the CS 279 Week 4 Lab Exercise, for Problem 1
 - the name of this script
 - both of your names
 - today's date
- After a blank line, write commands that do the following:
 - Prompt the user to enter a file name of their choice
 - Read what the user enters and store it in a shell local variable
 - Print to the screen: `You entered the file name:` followed by the word they entered
 - If a file with this name exists, call `wc` for that file.
Otherwise, use `touch` to create an empty file with that name, and then print a message to the screen saying that an empty file has been created with this name (and give the name).

Problem 2

Write a `bash` shell script named `save-to-file` or `save-to-file.sh` (your choice!) that meets the following requirements:

- It should start with the line that is considered good style (and is a CS 279 course requirement), that specifies that this script should be executed using the `bash` shell.
- After that, after a blank line, put in one or more **comments** that include:
 - that this is part of the CS 279 Week 4 Lab Exercise, for Problem 2
 - the name of this script
 - both of your names
 - today's date
- After a blank line, write commands that do the following:
 - Print to the screen a message including how many command-line arguments it was called with
 - If no command-line arguments were given, print a message telling the user they did not give it anything to write, and exit the script with an error code of 1.
 - Otherwise:
 - It should ask the user for the name of a file the given command-line arguments should be written to, and read what the user enters into a shell local variable
 - Use a list-style `for` loop to echo each command line argument such that it is appended on its own line to a file with this specified name
 - in the first line of this `for` loop, be careful to put the `$@` in double-quotes so that any command-line arguments with blanks in them are not split up onto multiple lines

- Then print a message to the screen saying that the command line arguments have been appended to this file (and give the file's name)

Problem 3

Write a `bash` shell script named `freeplay` or `freeplay.sh` (your choice!) that meets the following requirements:

- It should start with the line that is considered good style (and is a CS 279 course requirement), that specifies that this script should be executed using the `bash` shell.
- After that, after a blank line, put in one or more **comments** that include:
 - that this is part of the CS 279 Week 4 Lab Exercise, for Problem 3
 - the name of this script
 - both of your names
 - today's date
- After a blank line, include statements that do at least the following:
 - set a local shell variable to the result of calling a command of your choice written in backquotes
 - in a descriptive message, print to the screen the value of the shell variable you just set
 - write a `for` loop of your choice -- either "list-style" or "classic" style is fine -- noticeably repeating some action you choose
 - (you can decide if you would like to use command-line arguments and/or interactive input in this script)
 - (and you can add additional statements as you wish)

When you are done with these problems, use `sftp` on the workstation you are working on to transfer the following files from `nrs-projects.humboldt.edu` to that workstation or to your Google drive, and make sure to also e-mail those files to BOTH of you:

- `enter-file` or `enter-file.sh`
- `save-to-file` or `save-to-file.sh`
- `freeplay` or `freeplay.sh`

BOTH of you should then submit copies of these files to Canvas for this lab exercise.

Once both of you have submitted these lab exercise files, you may leave lab if you wish. Or, you can ask questions, read the course text, etc. But note that questions about today's lab exercise will get first priority.