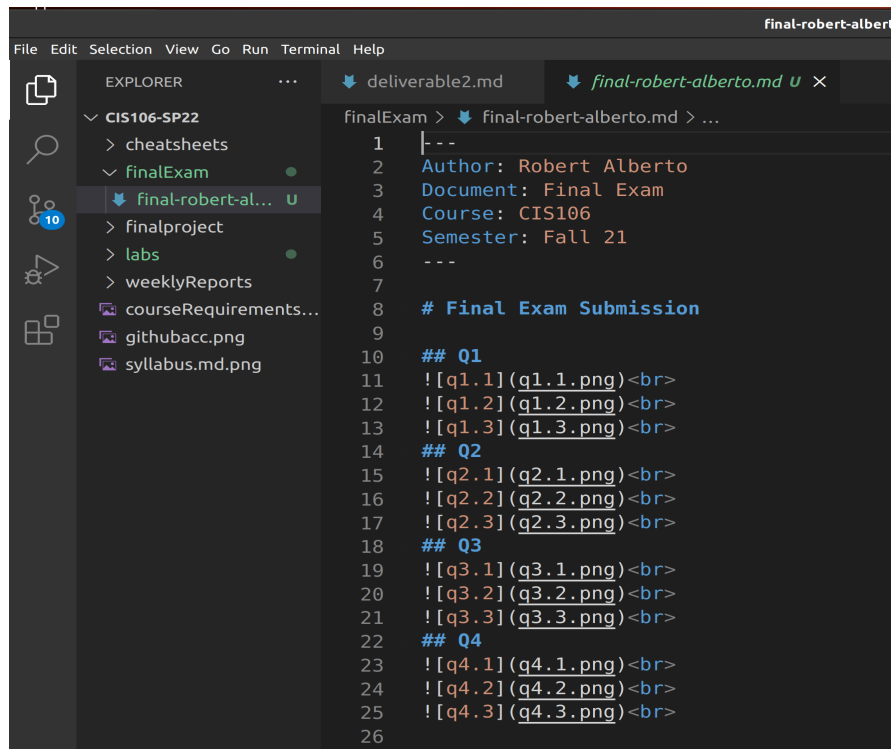# Spring 22 Final

Complete these steps before starting the exam.

- In your GitHub repository (the cis 106 folders) create a directory called: **finalExam.** This is going to be the directory where you will place your screenshots and the markdown file that you will use to answer all the questions.

- Inside the **finalExam** directory, create a file named: **final-firstname-lastname.md**

- Use the following naming convention for your images: **q#.1.png** for example, **q1.1.png** will be for question 1 part one if more than one screenshot is required.

- Open VS Code, open your repository, open the file final-firstname-lastname.md and write the following text. Obviously, replace my name with yours.

- Each question is worth 20 points.

- Before you start working on any question, make sure to be in your home directory (cd)

- All questions are independent of each other. You can work in any order you like.

Question 1

Clone the GitHub repository: https://github.com/ra559/midtermfiles3 (use the **git clone** command). Using the files found in **~/midtermfiles3/question1**, create a markdown file that contains the following data:

```
→ cat organizedReport.md
# All Files Organized
## Documents
-rw-rw-r-- 1 10K 05/15/22 linux.docx
-rw-rw-r-- 1 11K 05/15/22 macos.docx
-rw-rw-r-- 1 10K 05/15/22 windows.docx
## Web Sites
-rw-rw-r-- 1 512 05/15/22 about.html
-rw-rw-r-- 1 512 05/15/22 contact.html
-rw-rw-r-- 1 512 05/15/22 index.html
## PDFs
-rw-rw-r-- 1 16K 05/15/22 linux.pdf
-rw-rw-r-- 1 19K 05/15/22 macos.pdf
-rw-rw-r-- 1 17K 05/15/22 windows.pdf
```

To create this document, follow these instructions:

1. Long list all the files in the given directory excluding the Group and Owner, with human-readable file size, and with the date formatted as: **mm/dd/yyyy**

2. Create a file with the heading 1 "**# All Files Organized**". Make sure to add the heading 2 "**## Documents**" to the file. (*Tip: there are multiple ways of doing this.*)

3. Long list all the document files in the given directory excluding the Group and Owner, with human-readable file size, and with the date formatted as: **mm/dd/yyyy**. Append the output of the ls command to the markdown file you created in the previous step.

4. Repeat the previous command for the website and PDF files, and append the output to the markdown file. Make sure to append a header before you do the listing command. See the image for a reference.

5. Display the content of your markdown file.

Tips:

- *The man page of the ls command describes how to use the time format. The format variable I use in the screenshot is %D. Remember, grep allows you to find information faster when reading man pages.*
- *You should work from the **~/midtermfiles3/question1** directory rather than the home directory.*

Take a screenshot of the commands you used to answer this question. To receive a full grade, I need to see the command you used for step 2 and 3.

Question 2

Maria is a system administrator. She just got hired by a Law Firm that has a Linux server on site. She was given the administrator password, but due to the neglect of the previous administrator, nothing has been documented. Furthermore, she wants to start by creating a simple text file with some basic information about the system. This is the information you need to collect:

1. *Total number of users*
2. *Total number of users that can log in*
3. *The usernames of those who can log in. Assuming all the users use /bin/bash*
4. *Amount of memory. Total and currently in use*
5. *Basic info about the system. Such as kernel and operating*

The file needs to look like this:

```
→ cat basicInfo.txt
# ------- #
Basic Information about the System
# ------- #
Total number of users is
44
---------
Total number of users that can log in is
2
---------
Memory information
              total        used        free      shared  buff/cache   available
Mem:       16120304     4436344     7155048      701292     4528912    10644092
Swap:       4193784           0     4193784
---------
Basic information about system
Linux pop-os 5.17.5-76051705-generic #202204271406~1651504840~22.04~63e51bd SMP PREEMPT Mon Ma
y 2 15: x86_64 x86_64 x86_64 GNU/Linux
```

Follow these instructions to achieve the desired result.

1. Create a file that contains the header of your report. You do not need to include the lines, they are there just to make the document somewhat easy to read. *(Tip: Here you can either user vim, nano, or echo with I/O redirection)*

2. To obtain the total number of users, use the **/etc/passwd** file. You may need to use more than one command and the pipe to get the total number of users.

3. To obtain the total number of users that can log in to the system, you will need grep. 😉

4. The memory and system information can be obtained with two commands that we learned on the first lab.

5. Display the content of the file. The output must look as close to mine as possible. Obviously, your system configuration is different from mine, so the numbers will be different.

Take a screenshot of the commands you used to answer this question. To receive a full grade, I need to see the command you used to create the file, to get the required information, and the content of the file once you are done.

Question 3

Katrina is a very organized student. Every semester, a week before the first day, she prepares a master directory where she organizes her courses and all the needed material. For this semester Katrina is taking, CIS106-Linux Fundamentals, CIS180-Networking Essentials, and EN102-Composition II. Last semester, her master folder looked like this:

```
→ tree fall21/
fall21/
├── cis107
│   ├── hmw
│   ├── material
│   │   └── books
│   └── notes
├── cis125
│   ├── hmw
│   ├── material
│   │   └── books
│   └── notes
├── en101
│   ├── hmw
│   ├── material
│   │   └── books
│   └── notes
└── ma108
    ├── hmw
    ├── material
    │   └── books
    └── notes
```

Complete the following tasks:

1. Create the directory structure that Katrina will use. You have to create it in a single command.

2. In the **~/midtermfiles3/question3** directory, you will find all the material Katrina needs for this semester. Move all those files to their respective directories.

3. Display a tree of Katrina's directory for this semester

4. Display a tree of Katrina's directory in HTML format and save the output to a file called **katrina.html**

5. Install the program, **apache2**. This is a web server program.

6. Rename the file **/var/www/html/index.html** to **/var/www/html/index.html.bk**. (/var is a directory owned by root. Keep this in mind in case you get an error)

7. Move the file **katrinal.html** to **/var/www/html/**

8. Open this URL in a web browser: http://localhost/katrina.html

9. Take a screenshot of your web browser.

Take a screenshot of the commands you used to answer this question. To receive a full grade, I need to see the command you used to create the directory structure, display Katrina's directory structure in HTML format, rename the /var/www/html/index file, move the katrina.html file, and the screenshot of the web browser.

Question 4

In the **~/midtermfiles3/question1** directory, you will find a couple of image files. Pick one of them and answer the following questions:

1. What is the Absolute path of the image you picked?

1. What is the inode number of the image you picked?

2. Which command would you use to move the file from its current location to the **/usr/share/backgrounds** directory and rename it at the same time? Make sure to include the whole command. This must be done in a single command.

3. What command would you use to know the size of every image in the **~/midtermfiles3/question1** directory, including their permissions, and the full date of the last time it was modified?

4. Which command would you use to get this output of the **~/midtermfiles3/question1** directory. Include the whole command that will give you this output.

```
.
├── [-rw-rw-r--   512 May 16 21:32]  "./about.html"
├── [-rw-rw-r--   20K May 16 21:32]  "./accounts.ods"
├── [-rw-rw-r--   551 May 16 21:32]  "./basicInfo.txt"
├── [-rw-rw-r--   512 May 16 21:32]  "./contact.html"
├── [-rw-rw-r--    41 May 16 21:32]  "./hello.py"
├── [-rw-rw-r--    36 May 16 21:32]  "./hello.rb"
├── [-rw-rw-r--    32 May 16 21:32]  "./hello.sh"
├── [-rw-rw-r--   512 May 16 21:32]  "./index.html"
├── [-rw-rw-r-- 9.9K May 16 21:32]  "./linux.docx"
├── [-rw-rw-r--   16K May 16 21:32]  "./linux.pdf"
├── [-rw-rw-r--   609 May 16 21:32]  "./linux.txt"
├── [-rw-rw-r--   10K May 16 21:32]  "./macos.docx"
├── [-rw-rw-r-- 3.9K May 16 21:32]  "./MacOS_logo.svg"
├── [-rw-rw-r--   18K May 16 21:32]  "./macos.pdf"
├── [-rw-rw-r--   978 May 16 21:32]  "./macos.txt"
├── [-rw-rw-r--   403 May 16 21:44]  "./organized.md"
├── [-rw-rw-r--   392 May 16 21:32]  "./organizedReport.md"
├── [-rw-rw-r--   699 May 16 21:32]  "./Ubuntu-logo.svg"
├── [-rw-rw-r--   20K May 16 21:32]  "./users-data.ods"
├── [-rw-rw-r-- 10.0K May 16 21:32]  "./windows.docx"
├── [-rw-rw-r--   486 May 16 21:32]  "./Windows_logo.svg"
├── [-rw-rw-r--   17K May 16 21:32]  "./windows.pdf"
└── [-rw-rw-r--   866 May 16 21:32]  "./windows.txt"
```

Take a screenshot of all the commands you used to answer each question.

Good Luck

If you can honor me with your feedback
https://forms.gle/8AV4Jvw9xtT7626eA