

CSCE 215 – Unix/Linux Fundamentals
Final Project
15 Points

Assigned on: April 20th, 2021
Due: May 5th, 2021 Midnight

Carefully read the directions and perform all actions to make sure you get full credit. Do not use any unauthorized help such as GroupMe, Chegg, etc.

All actions (commands) should be performed on a CSE Linux lab machine remotely via ssh or client such as MobaXTerm. Your work will be graded via a Linux Lab machine, it must work there.

Setup

Option 1:

1. Download the Final.tar.gz file from the Dropbox.
2. Use scp to move the Final.tar.gz to your ~/215/finalProject folder on the Linux labs

Option 2 (if scp is not working for you):

1. Log in to the Linux labs via Moba or ssh.
2. cd into your ~/215/finalProject folder
3. Run the following command:
`wget https://cse.sc.edu/~coleca/Final.tar.gz`

Unzip and Check the Files:

1. Navigate to the ~/215/finalProject folder and untar and unzip the file:
`tar -xzf Final.tar.gz`

In this assignment you there will be 3 parts. Part 1 will focus on purely Linux commands, part 2 will be writing a bash script and part 3 will be a perl script. They will each be worth 5 points.

Part 1

Create a file named username_part1.txt. This part will be similar to your project 2 where you wrote commands to perform different tasks.

Tasks - **All needed files are in Final/Part1**

1. Extract line 50 of the waldo.txt file. You should see the following:

```
YOU FOUND WALDO! :)
```

2. Sort the file UnsortedList.txt first by the first column and then by the second such that the resulting text looks like this:

```
0 plum
2 avacado
2 peach
4 grapes
5 banana
10 apple
11 orange
```

3. Combine the contents of Headers.txt and Data.txt so that it looks like the following screenshot and save it to a new file called DataWithHeaders.txt.

```
ID Name Age
1 George 10
2 Amy 30
3 Fred 33
4 Joyce 60
5 Gerald 65
```

4. Write a find command that looks for all files that start with the string "file" and end in a txt extension (file1.txt, file2.txt, file100.txt etc...)
5. Use a sed command or a series of sed commands to turn the file UnixIsGreat.txt (shown in the first figure) to read as follows in the second figure.

```
Unix is great!
Each distribution uses a different kernel.
It was Thompson and Ritchie that came together to create unix.
Since then UNIX has become very popular.
```

```
Linux is great!
Each distribution uses the same kernel.
It was Torvalds and Stallman that came together to create Linux.
Since then Linux has become very popular.
```

Submission Format Part 1

All commands should be submitted in a single file, named \$USER.part1.txt which you will turn in to Dropbox (remember, \$USER is your username). Before each section of your script, clearly state which part the proceeding code will be completing. Here is an example:

```
# yourNameHere
# CSCE215.yourSection
# Final Project Part 1
#####
```

```
# Question 1:
Your command here
```

```
# Question 2:
Your command here
```

```
.
.
.
.
```

```
# Question 5:
Your command(s) here
```

Grading Rubric

- Each part is worth 1 point.
- It must produce the exact output.
- Other than part 5, if two or more commands are used for a given part, you must use a pipe (not && or ;).

Other considerations:

- Wrong filename (-1 mark)
- Does not run (-1 mark per command that does not run).
- An image/other file format was submitted (-5 marks): If an image, .doc, .rtf or other format is submitted instead of a plain .txt, your homework will not be graded.
- Submitted as draft (-1 mark): Make sure to fully submit your homework for grading. i.e. it must NOT say SUBMITTED AS DRAFT.

Part 2 - All needed files are in Final/Part2

Create a shell script that takes a name of a file as a command line argument. It will then read that file line by line to determine if the line contains the word “match” (case sensitive). If the line contains match then the line will be redirected into a file called matches.txt. If not, then the line will be redirected into a file called mismatches.txt. **You MAY NOT use grep!** *You must use only bash loops and conditionals.*

At the end of execution you should have the following:



```
coleca@cocsce-l1d43-37: ~/Downloads/temp
File Edit View Search Terminal Help
coleca@cocsce-l1d43-37:~/Downloads/temp$ cat input.txt
This line is a match.
This line is also a match.
Hello
Bye
matches
coleca@cocsce-l1d43-37:~/Downloads/temp$ cat matches.txt
This line is a match.
This line is also a match.
matches
coleca@cocsce-l1d43-37:~/Downloads/temp$ cat mismatches.txt
Hello
Bye
coleca@cocsce-l1d43-37:~/Downloads/temp$
```

Submission Format Part 2

All commands should be submitted in a single file, named \$USER.part2.sh which you will turn in to Dropbox (remember, \$USER is your username).

```
# yourNameHere
# CSCE215.yourSection
# Final Project Part 2
#####
```

Your code here...

Grading Rubric

- It must produce the exact output (2 points for each output being correct).
- 1 point for correct format.

Other considerations:

- Wrong filename (-1 mark)
- Does not run (-1-> -3 depending on the scenario).
- Use of grep -3.
- An image/other file format was submitted (-5 marks): If an image, .doc, .rtf or other format is submitted instead of a plain .txt, your homework will not be graded.

- Submitted as draft (-1 mark): Make sure to fully submit your homework for grading. i.e. it must NOT say SUBMITTED AS DRAFT.

Part 3

Write a perl script that will take in a file of grades (scores.csv) as a command line argument and calculate the grades for each of the students and outputs to another file called graded.csv.

The input file looks like this:

```
Name, Project1, Project2, Project3, FinalProject, Quiz1, Quiz2, Quiz3, Quiz4, Quiz5, FinalExam, Attendance
Bob, 10, 9, 5, 12, 5, 3, 4, 2.5, 5, 13, 4
Jill, 8, 7, 10, 12, 4, 1, 5, 0, 5, 11, 4
...
```

The grades you will calculate are for this course (CSCE 215). Here is the criteria:

Projects (40%) - 30 points
 Final Project (15%) - 15 points
 Quizzes (25%) - 25 points
 Final exam (15%) - 15 points
 Attendance (5%) - 5 points

You will calculate the grade in two ways:

1. A straight score = total points earned / total points for course
2. A weighted score =

$$0.4 * (\text{total earned for projects} / 30) + 0.15 * (\text{total earned for final project} / 15) + 0.25 * (\text{total earned for quizzes} / 25) + 0.15 * (\text{total earned from final exam} / 15) + 0.05 * (\text{total earned for attendance} / 5)$$

You will then also find the max of these scores and report that as the final score.

The output file looks like this:

```
Name, StraightScore, WeightedScore, MaxScore
Bob, XX, XX, XX
Jill, YY, YY, YY
...
```

Submission Format Part 3

All commands should be submitted in a single file, named \$USER.part3.pl which you will turn in to Dropbox (remember, \$USER is your username).

```
# yourNameHere
# CSCE215.yourSection
# Final Project Part 3
#####
```

Your code here...

Grading Rubric

- It must produce the file with the graded scores. 2 points straight score, 2 points weighted score, 1 point for max

Other considerations:

- Wrong filename (-1 mark)
- Does not run (-1-> -3 depending on the scenario).
- Improper formatting of the output -2 marks
- An image/other file format was submitted (-5 marks): If an image, .doc, .rtf or other format is submitted instead of a plain .txt, your homework will not be graded.
- Submitted as draft (-1 mark): Make sure to fully submit your homework for grading. i.e. it must NOT say SUBMITTED AS DRAFT.