Homework 7 - TextProcessing, Git, and Shell Scripting

1. Your job is to complete this excellent GitHub Tutorial.

• Watch the GitHub YouTube Video at
https://www.youtube.com/watch?v=0fKg7e37bQE&ab_channel=LearnCode.academy
• Make sure you create a username on GitHub. Please make every attempt to choose a professional name that at least shows part of your name so we know it is yours.
Submit at least 5 screenshots to show the progress that you are making during the tutorial.
• Make sure you have one screenshot that shows your GitHub profile page (this counts toward the 5 screenshots)
• Make sure you have one screenshot that shows the URL to the repository you created for the tutorial (this counts toward the 5 screenshots)
For full points, 5 distinct screenshots must be attached to your submission.
Please note that GitHub no longer lets you use password authentication (directly) on pushes. You need to set up an authentication token in the developer settings. I have included an additional video for your convenience. This video is NOT a replacement for the first video. It just shows how to use the personal access token. The GitHub documentation also explains how to use the token INSTEAD of your password when you use git at the command line.

2. What is Shell Scripting?

A shell script is a program created to automatically run Unix commands. Typical operations performed by shell scripts include file manipulation, program execution, and printing text.

- https://en.wikipedia.org/wiki/Shell_script
- https://www.section.io/engineering-education/introduction-to-shell-scripting/

What we would like you to do in this homework:
Create a shell script to parse* json input into human readable output using a package called jq.

*in the context of programming: parsing is the process of turning some kind of data into another kind of data

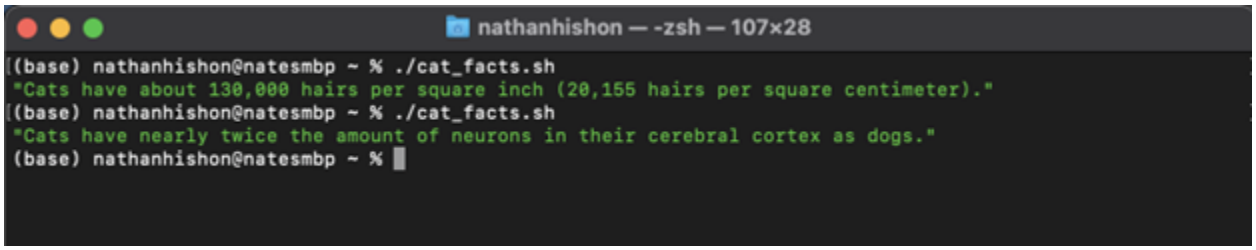
When turning in please include screenshots of your:

1. **input JSON: file, API resource, etc.**
2. **shell script: how you are producing output**
3. **output**

Where to get JSON data?
Either download a file(.json), access a URL endpoint which returns a simple json output, or make your own resource!

https://github.com/public-apis/public-apis - public APIs to request json from
https://drive.google.com/file/d/1TVf-Von3auR2B3WPy585SoCb8WEM4auU/view?usp=sharing - an example json file of cat facts

Example:



JSON:
Stands for javascript object notation, JSON is a data format mainly used to transfer data from a server to a client and vice versa. Popular with JavaScript(a programming language) based applications which includes browser extensions and websites.

JQ:
A package for neatly parsing JSON.
https://stedolan.github.io/jq/

Packages:
A package **delivers and maintains new software for Linux-based computers**. Just as Windows-based computers rely on executable installers, the Linux ecosystem depends on packages that are administered through software repositories.*basically a piece of software
https://www.lifewire.com/guide-to-linux-packages-2202801

How to Download/Install packages:
Ubuntu: sudo apt-get install jq
Mac: Install the package manager homebrew https://brew.sh/
When installed run: brew install jq

Use the following data file for the following question 3-6 (data.json):

```
 {
   "first": "John",
   "last": "Doe",
   "age": 25
 },
 {
   "first": "Mary",
```

```
    "last": "Doe",
    "age": 24
  },
  {
    "first": "Jack",
    "last": "Jones",
    "age": 22
  }
]
```

3. How would you extract a specific element from an array?

4. How would you filter by a specific value, for example “age=25” from an JSON array of person objects?

5. How would you remove a key/value pair from the last person object in the data set?

6. How would you find the sum of the age in the date set?

Several questions were misconfigured on homework 6 which was supposed to have 10 total questions. If you submitted homework 6 with questions 6-10 please copy your answers here. If you only had 5 questions on homework 6 please answer these now.

7. (Environment) Take screenshots to show that you know how to do the following at the prompt:
   A. list the environment variables
   B. show the currently running user
   C. show the currently running user's home directory
   D. show the path to find executables
   E. show the umask
   F. show the aliases available in your shell

8. (Introduction to vim) Take screenshots or produce a short video that shows that you can do the following:
   A. create a file with some text or code. It can be any text as long as it is at least 10 lines long when viewed in the editor
   B. save the file to any name of your choice
   C. display the file in the terminal session
   D. reopen the file with vim and add 10 more lines of text to it. You could also just copy the lines in the file and add them toward the end
   E. save again
   F. display the file in the terminal session

8. (Prompt) This is totally up to you! Take a screenshot. Change your prompt to make it look cool. You should at least take advantage of techniques for "alternative prompt designs", e.g. using special escape codes to add color, effects, move the cursor, etc. Save the file to your .bashrc (or whatever shell you are using, if not bash) and make sure your prompt change shows up when you restart the terminal.

9. (Package Management) What package manager are you using to manage your system? Take a screenshot. Show that you can install a package on your system. You can pick any package you like. Good examples of packages are zip, unzip, wget, and curl. Once the package is installed, show that you can "find" the executable in your PATH.

10. (Storage Media) Take a screenshot to show the filesystems that are mounted on your system. Show how you would determine which filesystem contains the home directories on your system.