**Linux Exercises Part 3: Name: Ryan Kyger**

This week we went over:

[Loops,](http://swcarpentry.github.io/shell-novice/05-loop/index.html) [Shell Scripts](http://swcarpentry.github.io/shell-novice/06-script/index.html) and [Finding Things](http://swcarpentry.github.io/shell-novice/07-find/index.html)

**Part I: Short Answer**

1. *Why are we learning the shell? When would you use it in your research?*

The shell can be used for bioinformatics. I have used it to analyze NGS data.

1. *The shell prompt usually looks like a $ what does it mean when it looks like >?*

The shell is expecting another command.

1. *What is a loop and when would you use it?*

A loop allows you to repeat a command over and over. You would use it to automate tasks.

1. *In a directory with the following files. What would the following loop do?*

apple.txt, banana.txt, orange.txt

$ for filename in \*.txt; do

> cat ${filename} >>fruits.txt

> done

It would append the names of the three input files to “fruits.txt”.

1. *What is a shell script?*

It is a script that is written in bash, these scripts can be run on the command line.

1. *What are the benefits of writing and running a script over typing the code in?*

Doing this reduces user error associated with typing.

1. *When looking at a script what does # mean? Why would you use one?*

“#” means ignore this line; it allows you to make comments in a script.

1. *What does grep stand for and what does it do?*

grep means “Globally search a Regular Expression and Print”, it allows you to search for specific patterns of characters in files.

1. *What does find do?*

find allows you to search for and find files and directories based on the conditions you specified

**Part II: Practice**

* *How can you tell if a loop is doing the right thing? Hint: Echo.*

You can use echo to have linux output the results of a command as it iterates through a loop.

* *To get a longer instruction on grep and find go through* [*this tutorial*](http://swcarpentry.github.io/shell-novice/07-find/index.html)*?*

1. *As part of this exercise please open the shell and practice making loops, and shell scripts. Practice naming the files in the loop. Best practice is to try a little bit every day. Again, try to challenge yourself by not using the mouse.*
2. *Create a loop that would copy all the files in one directory ending in ‘.txt’ to another directory. Paste the code here.*

#!usr/bin/bash

for filename in \*.txt;

do mv $filename new-directory/;

done

1. *Write a script with documentation (hint #) that would run a program called find\_taxa.py on a set of files ending in ‘.fasta’.*

*What is the name of your script? Type the script here.*

“taxa-script.sh”

#!usr/bin/python3

for filename in \*.fasta;

do python3 find\_taxa.py $filename;

done

1. *From the sequence file you got last week. Tell me how many times we find the pattern ‘GAGA’. What was the code used to find this?*

grep -o "GAGA" Hutia\_DNA.fasta | wc -l

(-o is exact match)