COMP 302 System Programming, Spring 2022
Instructor: Zafer Aydın
Lab Assignment 7

## Introduction

In this lab you will continue exploring regular expressions. Submit your solutions to the questions below in a text file. Upload your solution to Canvas.

## Questions

Prepare the following file that contains students' grades as two fields. The first field is the student's name and the second is the grade. You can enter the following lines to prepare this file

```
cat > grades.txt

ata         43

Mete        90

Buket       47
```

Then press Ctrl-D to exit from `cat`. You can use spaces or tabs between the fields.

1. Provide a single-line command using `grep` that finds the lines that contain grades between 41 and 49.

2. Provide a single-line command using `grep` that finds the lines that contain students whose names have the first letter "a".

3. Provide a single-line command using `grep` that finds the lines that contain students whose names have the first letter "a" or "b". Make your search case insensitive.

4. Provide a single-line command using `grep` that finds the lines that contain students whose names have the first letter "a" or "b" and grades are between 41 and 45. Make your search case insensitive.

5. Provide a single-line command using `grep` that finds the lines that contain students whose names start with a capital letter.

6. Provide a single-line command using `grep` that finds the lines that contain students whose names start with a capital letter and whose grades are between 80-100.

7. Provide a single-line command using `grep` that finds the lines that contain students whose names start with a capital letter and whose names contain five letters.

8. Provide a single-line command using `grep` that lists the directories of the present working directory. Hint: You can do the listing in detailed format.

9. Provide a single-line command using `grep` that lists the non-directories of the present working directory. Hint: You can do the listing in detailed format.

10. Provide a single-line command using `grep` that finds the system users that use the `BASH` as shell for their environment. Hint: search for the word `/bin/bash` in `/etc/passwd` file.

11. Provide a single-line command using `grep` that lists the files last modified this month under the current directory (i.e. March 2018). Hint: You can search for the word "Mar" or "\-03\-" whichever is appropriate.

12. Provide a single-line command using `grep` that finds the number of processes belonging to your user. Hint: you can start with `ps aux` to list the processes and then pipe the result to `grep` to search for lines that start with your username. You can use `-c` option of `grep`.

13. Provide a single-line command using `grep` that finds the number of processes not belonging to your user.

14. Provide a single-line command using `grep` that receives a text file and produces a new file which does not include the blank lines in the original file.

Run the following single-line command to produce random phone numbers and to save them to a file

```
for i in {1..100}; do echo "(${RANDOM:0:3}) ${RANDOM:0:3}-${RANDOM:0:4}" >> phonelist.txt; done
```

```
echo 555 123-4567 >> phonelist.txt
```

```
echo "(555) 123-4567" >> phonelist.txt
```

```
echo 507 408-4693 >> phonelist.txt
```

```
echo "(507) 408-4693" >> phonelist.txt
```

You will use `phonelist.txt` for questions 15-20. You can use

? for zero or one match

+ for one or more match

* for zero or more match

{n} to match for n times

[0-9] to match to a digit

| to alternate between extended regular expressions

You can user `grep -E` for extended regular expressions. In this case you can use backslash as an escape character to search for "(" i.e. "\(" if necessary.

15. Provide a single-line command using `grep` that finds phone numbers in `phonelist.txt` in this format only:

(*nnn*) *nnn-nnnn*

16. Provide a single-line command using `grep` that finds phone numbers in `phonelist.txt` in this format only:

*nnn nnn-nnnn*

17. Provide a single-line command using `grep` that finds phone numbers in `phonelist.txt` in one of the following two formats only:

(*nnn*) *nnn-nnnn*

*nnn nnn-nnnn*

COMP 302 System Programming, Spring 2022
Instructor: Zafer Aydın
Lab Assignment 7

18. Provide a single-line command using `grep` that finds phone numbers in `phonelist.txt` that does not obey to any of the following formats:

(*nnn*) *nnn-nnnn*

*nnn nnn-nnnn*

19. Provide a single-line command using `grep` that finds phone numbers in `phonelist.txt` that include either (555) or (507) as the area code. Hint: you can use extended regular expression and | symbol for alternation.

20. What does the following command produce?

```
grep -n '^' phonelist.txt
```