Lab 4

1. (1p) **AWK:** Print only the first 4 fields from each even-numbered line from a file, considering that the fields are separated by whitespaces. If a line has fewer than 4 fields, print all of them.

2. (1p) **GREP:** Print all the lines that contain only non-alphanumeric characters from a file. (any character that isn't a letter or a digit).

3. (1p) **SED:** Duplicate each occurrence of an integer number from a file. We will consider that an integer number is a sequence of neighboring base 10 digits.
   - Ex: line "This 1234 is a number" will become "This 12341234 is a number"
   - Ex: line "56.34" will become "5656.3434"

4. (2p) **SED:** Delete all characters after the last whitespace from each line from a file.
   - Ex: line *"A regular, boring line"* will become "*A regular, boring "*
   - Ex: line *"A less regular line"* will become *"A less regular "*

5. (2p) **AWK:** Print the line number and the field from the middle of the line from each line that contains an odd number of fields from a file. Consider that the fields are separated by whitespaces. Note: division in awk is by default float division. If you need the integer part of a division use the int function. Ex: int(5/2) = 2.

6. (2p) **SED:** Swap field number 2 with field number 3 from a file where the fields are separated by the "**:**" character (Ex. /etc/passwd if available, but any file where fields are separated by : should do)

7. (2p) **GREP:** Print all lines that contain at most 5 vowels, not necessarily consecutive, situated between 2 **^** signs from a file.
   - Ex: line *"aei^, still works^"* satisfies the condition
   - Ex: line *"abc^, way too many vowels here ^"* has too many vowels between the two **^**
   - Ex: line *"^here there are too many vowels^but not here^"* satisfies the condition because there are 4 vowels between the second and third occurrences of the **^** character

8. (3p) **SED:** Remove the first word containing only lowercase letters from each line of a file

9. **(3p) AWK + GREP:** Print the number of processes run by each user in the system (in the format *nr_processes user*). You can obtain a list of all processes in the system and the user that is running each process using **ps -ef**. Check the manual for **sort** and **uniq**.

10. **(3p) GREP + SED + AWK:** For each file from the current directory, display only the name of the file and the permissions for the user. (not the permissions for the *group* or for *other*; you can use **ls -l** to get information about files and folders from the current directory)