Homework 6 - grep, regex, sed

Download the http://meop3.troja.mff.cuni.cz:8010/linux/materials/texts.tar.gz and
http://meop3.troja.mff.cuni.cz:8010/linux/materials/RegCM_model_runtime_logs.tar.gz
files. http://meop3.troja.mff.cuni.cz:8010/linux/materials/

1. With a one line command that saves all usernames transformed into CAPITALS in a bash array(!) called USERNAMES. Capitalize using bash variable expansion!!! (hint: bash variable capitalization will work on arrays too).

2. Write a regex for "rodne cislo" in the form YYMMDD/NNNN or /NNN, where MM is 01..12 for men and 51..62 for women. YY is anything between 00 and 99, and DD depends on MM (28, 30 or 31, disregard leap years).

3. Write a sed command for caesar file which transforms the chapter names from "[XX]" to "Chapter XX" and prints only the first line of text after the chapter on a newline .
So the output should look like this:
Chapter 1
Quita Gallia Caesar, ut constituerat, in Italiam ad conventus agendos
Chapter 2
His rebus agitatis profitentur Carnutes se nullum periculum communis
...

4. In the chemicals file, using sed, change the order of chemical code and chemical names and from the code remove the "-". This have to be a one line command!!!
The output should look like this:
p Nitrochlorobenzene 100005
4-nitrophenol 100027

5. In pytoncode.py, add a comment line (e.g. # This is a comment) before each line with function definition (i.e. a line with def ..) and a different comment after each "for" cycle. Use sed only. Hint: sed -e "first inserting" -e "second inserting", the def and for does not have to start always at the beginning of the line.

6. Construct a regex for complex numbers (e.g. accepted forms for the real arguments a and b in a+ib are 1.15, 3.4e-15, +15, -500, -.024, -0.154e15, so the complex number would look like e.g. +15-0.154e15i while the complex part is not compulsory).

7. In the RegCM_model_runtime_logs.tar.gz file you will find the runtime logs from the RegCM model. Each log file contains a 1 month long run. Write a one line command that extracts the number of seconds each month took and calculates their average in hours (look for the "Total elapsed seconds of run" line and use calc or bc with some other known tools.)

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