Operating Systems

Lab 08 Exercise – Shell scripts

Learning goals: this laboratory activity is devoted to the use of bash scripts.

Exercise 1

Write a bash script that, given a filename as a command line argument, prints the length of the longest line in the file and the total number of lines of the file.

Exercise 2

Write a bash script that replaces the third word of each line of the list of files passed as its arguments with the same word but in capital letters.

Exercise 3

Consider the content of the following example file **`in.txt`**, whose fields are separated by **a single TAB**

```
Product    Quantity
Books 3
Pens  10
Pencil     4
Books      2
Pens  20
Pencil     3
Books 8
```

Write a bash script that:
1. Sorts data in reverse order by first field (**`Product`**)
2. Sorts data by second field (**`Quantity`**)
3. Displays the **total quantity** of a product given as argument of the command line
4. Displays the list of products in **capital letters**, each kind of product must appear **only once.**

Exercise 4

Write a shell script that receives as arguments in the command line two arguments **`dir`** and **`out`**.
It must check that **`dir`** is a directory, otherwise it displays an error message and exits.
If **`dir`** is a directory, it must check all files of the filesystem tree rooted in that directory, and print the following information:

a. If the file is a regular file, prints its pathname, its dimension, and if the user has read and write permissions
b. If the file is a directory, prints its pathname, and how many sub-directories it contains

Notice that the output of command **`ls -l`** is similar to this one:

```
drwx------   12 user  user   408 Oct 30 19:09 Desktop
-rw-r--r--    1 user  user   192 Jul 13 00:03 pip
-rwxr-xr-x    1 user  user    74 Nov  3 10:02 fff.c
drwxrwxrwx   22 user  user   408 Oct 30 12:09 tmp
```

The results must be saved in file **`out`**, sorted in alphabetic order.