# **Posibles Preguntas UNIX-C:**

## **Expresiones:**

Write down the expression I have to use to refer all the files whose name begins with a letter (uppercase or lowercase) followed by 1 digit and total name length greater or equal 3.

**[a-zA-Z][1-9]?\***

Write down the expression I have to use to refer all the files which name begins with a letter (uppercase or lowercase) and ends with a dot followed by a digit.

**[a-zA-Z]\*\.[0-9]**

Write down the expression I have to use to refer all the files which name begins with a digit and ends with a dot followed by a character that is not a digit.

**[0-9]\*.[!0-9]**

Write down the expression I have to use to refer all the files whose name begins with a uppercase letter and contains at least one digit in their name.

**[A-Z]\*[0-9]\***

Write down the expression I have to use to refer all the files whose name begins and contains at least two digits in their name.

**[a-zA-Z]\*[0-9]\*[0-9]\***

Write down the expression I have to use to refer all the files which name has exactly 3 characters and the second one is a dot.

**?.?**

Write down the expression I have to use to refer all the files in the current directory whose name finish with .c or .h.

**\*.[ch]**

Write down the expression I have to use to refer to all the files whose name begins with 2 letters (uppercase or lowercase) followed by 1 digit and total name length greater or equal to 5.

**[a-zA-Z][a-zA-Z][0-9]??\***

Indicate what expression I should use to refer to all files whose name contains a hyphen under "\_" and ends at a period followed by a letter "c" or "h" that can be lowercase or uppercase.

**\*[\_]\*.[cChH]**

Write down an expression I can use to refer to all files in the current directory whose name begins with a lowercase vowel, ends with a digit and total name length is greater or equal 3.

**[aeiou]?\*[0-9]**

Indicate which expression I should use to refer to all files whose name contains a hyphen under "\_" that is neither the first nor the last of the characters in the name.

**[!\_]\*[\_]\*[!\_]**

## **Files / ls /add / remove/ move/ copy …:**

Write down the command I have to use to remove the directory “d1”. This directory is the “brother” or the current directory. Assuming you have all the access rights to do that, what condition must comply “d1”?

**rmdir ../d1**

**It must be empty**

Write down the command I have to use to display all the relevant information (permissions, owner, group, size, ...) of the current directory (I only want to see the information about the directory itself, not about the files it contains).

**ls -ld .**

Write down the command I have to use to display all the relevant information (permissions, owner, group, size, ...) of the "father" of the current directory (I only want to see the information about the directory itself, not about the files it contains).

**ls -ld ../**

Write down the command I have to use to display all the relevant information (permissions, owner, group, size, ...) of the system root directory (I only want to see the information about the directory itself, not about the files it contains).

**ls -ld /**

Write down the command I have to use to show all files in the directory “d1”. This directory is the “brother” or the current directory. I want to see all files including hidden ones and show the size in a human-readable format.

**ls -lah ../d1**

Write down the command I have to use to move all the files inside "d1" directory to "d2" directory. "d1" is inside current directory and "d2" is a "brother" of the current directory.

**mv d1/\* ../d2/**

Write down the command(s) I have to use to remove directory "d1" (an empty directory), given that "d1" is the "uncle" of the current working directory. The lower number of commands you use, the better your answer will be considered.

**rmdir ../../d1**

Write down the command I have to use to remove all the files and directories inside directory "h", which is in the current directory.

**rm -r h/\***

Write down the command I have to use to remove all the files inside directory "/var/tmp" without deleting child directories and its content.

**rm /var/tmp/\***

Write down the command I have to use to copy all files in /var/tmp to the current directory

**cp /var/tmp/\* .**

Write down the command I have to use to remove all the files and directories inside directory "d", which is in the current directory.

**rm -r d/\***

Indicate what order I should use to copy all the files that are in /var/tmp to the current directory. With the order you indicate, what would happen to the possible directories in /var/tmp?

**cp /var/tmp/\* .**

**The directories will not be copied (unless you add the -r flag)**

## **Compilation and Linking:**

Write down how to compile a program to be able to debug it later.

**gcc -g program.c -o program**

Indicate what order must be executed to compile a program to its object code (without generating executable) but generating debug information.

**gcc -g -c program.c**

Indicate what order must be executed to compile a program to its object code (without generating executable by linking), showing all the "warnings" if any, from a program ("program.c") written in C.

**gcc -c -Wall program.c**

Write down what command must be executed to compile a program to generate the object code (avoiding the generation of the final executable code).

**gcc -c program.c**

Write down how to compile a program divided in 9 modules (from m1 to m9), where each module is has the corresponding .c and .h files (m1.c, m1.h, m2.c, ...)

**gcc -o executable m1.c m2.c m3.c m4.c m5.c m6.c m7.c m8.c m9.c**

**or gcc -o executable m[1-9].c**

Write down the command I must use to generate an executable file called "executable" from an C program.

**gcc program.c -o executable**

Write down the steps I have to follow to continue the execution of the current program, which is running in the foreground, as a background process.

**Control + Z**

**bg**

The command "gcc -g -c file.c" generates an executable named "a.out"

**No as it has the -c flag, that prevents that from happening**

Indicate which order must be executed to obtain an executable named "executable" that can be debugged, from a correct program written in C.

**gcc -g program.c -o executable**

## **Permissions:**

Write down the strictly necessary file permissions we need to add information to a file (write down all the permissions that are necessary, both the file and the directory permissions)

**File (‘w’) – Directory (’x’) -> If the file exists in the directory**

**File (‘w’) – Directory (‘w’,’x’) -> If the file doesn’t exist in the directory**

Write down the strictly necessary file permissions we need to remove a file (write down all the permissions that are necessary, both the file and the directory permissions)

**File (no) – Directory (‘w’,’x’)**

Write down the strictly necessary file permissions we need to know the names of files inside a given directory.

**Directory (‘r’,’x’)**

Write down the strictly necessary file permissions we need to create a file.

**In that directory (‘w’,’x’)**

Write down the strictly necessary file permissions we need to read a file (write down all the permissions that are necessary, both the file and the directory permissions)

**File (‘r’) – Directory (‘x’)**

Write down the strictly necessary file permissions we need to rename a file (write down all the permissions that are necessary, both the file and the directory permissions)

**Directory (‘w’,’x’) and File (no)**

Write down the strictly necessary file permissions we need to modify the content of a file (write down all the permissions that are necessary, both the file and the directory permissions)

**File (’w’) – Directory (‘x’)**

Indicate the strictly essential permissions that I need to have to add information to a file (indicate all the necessary ones, both in the file and in the directory to which it belongs).

**File: w – Directory: x**

Indicate the strictly indispensable permissions that you need to have to rename a file (indicate the permissions both in the file and in the directory in which it is located)

**Directory (‘w’,‘x’) – File (no)**

## **Real Problem Frank and Cris:**

I am the user “Frank” and I belong to the group “users”. Can I add information to the contents of “Document”? Why?

drw---x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-r-xr-xr-x 1 Frank users 6736 feb 1 15:58 Document

**No, because neither Paco nor his group has write (‘w’) permission on "Document".**

I am the user “Frank” and I belong to the group “users”. Can I remove the file “Document”? Why?

drw---x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwx--xr-x 1 Frank users 6736 feb 1 15:58 Document

**No, because Paco does not have write (‘w’) permission on the current directory (‘.’).**

I am the user “Frank” and I belong to the group “users”. Can I remove the file “Document”?

dr-x--x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwx--xr-x 1 Frank users 6736 feb 1 15:58 Document

**No, because Paco does not have write (‘w’) permission on the current directory (‘.’).**

I am the user “Frank” and I belong to the group “users”. Can I see the contents of “Document”? Why?

dr-x--x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwx--xr-x 1 Frank users 6736 feb 1 15:58 Document

**Yes, as you have permissions (‘r’) in the File and (‘r’,’x’) in that directory (.)**

I am the user “Chris” and I belong to the group “users”. Can I see the contents of “Document”? Why?:

drw---x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

---xr-xr-x 1 Frank users 6736 feb 1 15:58 Document

**Yes, as he has (‘x’) permission in the directory and (‘r’) in the file**

I am the user “Chris” and I belong to the group “users”. Can I see the contents of “Document”? Why?

dr-x--x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwx--xr-x 1 Frank users 6736 feb 1 15:58 Document

**No, as she does not have (‘r’) permissions on the file Document, as she belongs to the “users” group**

I am the user "Chris" and I belong to the group “users”. Can I remove the file “Document”? Argument your answer

dr-x-wx--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwxrwxr-x 1 Frank users 6736 feb 1 15:58 Document

**Yes, as she has (‘w’,’x’) permissions on the current directory (‘.’)**

I am the user "Frank" and I belong to the group “users”. Can I modify the contents of “Document”?

dr-x--x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-r-xrwxr-x 1 Frank users 6736 feb 1 15:58 Document

**No, as has not ‘w’ permission in the Document file**

I am the user “Frank” and I belong to the group “users”. Can I remove the file “Document”?

drwx--x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-r-x--xr-x 1 Frank users 6736 feb 1 15:58 Document

**Yes, as you have ‘w’ and ‘x’ permissions in the current directory (‘.’)**

I am the user “Frank” and I belong to the group “users”. Can I see the contents of “Document”?

dr-x--x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwxr-xr-x 1 Frank users 6736 feb 1 15:58 Document

**Yes, Frank can see the contents of "Document" because he has 'r' permission on the file and 'x' permission on the directory.**

I am the user "Chris" and I belong to the group “users”. Can I add information to the the contents of “Document”?:

dr-x--x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwxr-xr-x 1 Frank users 6736 feb 1 15:58 Document

I am the user "Chris" and I belong to the group “users”. Can I remove the file “Document”? Argument your answer

dr-x-wx--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwxr--r-x 1 Frank users 6736 feb 1 15:58 Document

I am the user "Chris" and I belong to the group “users”. Can I remove the file “Document”? Argument your answer

dr-x--x--x 29 Frank users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwxrwxr-x 1 Frank users 6736 feb 1 15:58 Document

I am the "Paco" user of the "users" group. Can I delete the file "Document"?

dr-x-wx--x 29 Paco users 4096 feb 13 00:00 .

drwxr-xr-x 20 root root 4096 ene 27 2016 ..

-rwx--xr-x 1 Paco users 6736 feb 1 15:58 Documento

I am the user “Pepe” of the “users” group. Assuming I can get to the parent directory of the displayed directory: Can I see the contents of the “Document” file? Why?:

drw---x--x 29 Paco users 4096 Feb 13 00:00 .

drwxr-xr-x 20 root root 4096 jan 27 2016 ..

---x--xr-x 1 Paco users 6736 Feb 1 15:58 Document

I am user "falvarez" and belong to the group "teachers". Can I execute "hello"? Why? ---x--x--x 1 falvarez falvarez 8304 Jan 29 12:17 hello

## **Help / Man / Type:**

How can I obtain help about a built-in command?

**help command**

How can I obtain help about an external command?

**man command**

Write down the differences between an external and a built-in command.

**man provides detailed manuals for external commands, while help gives brief explanations for shell built-in commands.**

How can I know whether a command is a built-in or an external one?

**type command**

"make" is an external command. Which is the directory it is stored in? Explain how did you obtain the answer.

**/usr/bin**

**By executing command “type make”**

How do I know if an order is shell internal or external? What order do I use to get information about an internal order? And to obtain information from an external order?

**type command**

**help command -> If it is built-in**

**man command -> If it is external**

## **Run / Stop, foreground / background:**

Write down the steps I have to follow to continue the execution of a process that I have stopped before.

**jobs (identify the process -> [number])**

**fg [number]**

Write down how to execute a process in background. What are the advantages of this kind of execution?

**program & -> Allows multitasking without blocking the shell. Also frees the terminal for other tasks**

How can I know the list of processes that are running in the system with the current user as effective user?

**ps**

Write down the steps I have to follow to know the list of processes executed by the user from the current terminal.

**ps**

Write down the steps I have to follow to stop temporally the execution of a foreground process. Assume we don’t have any key combination to do it.

**ps -> Look for the PID**

**kill -STOP PID**

Write down the steps I have to follow to stop temporally the execution of a process running in background.

**ps -> Find its PID**

**kill -STOP PID**

Write down the steps I have to follow to terminate the execution of a process running in foreground and do not respond to the ^C key.

**ps -> To find its process ID**

**kill -9 PID -> To finish it**

Write down the steps I have to follow to terminate the execution of a process running in background.

**ps -> Find its PID**

**kill -9 PID**

Indicate what steps I can take so that a process that I have launched in the background, and is stopped, resumes its execution in the background.

**jobs (identify the process -> [number])**

**bg [number]**

Indicate the command to get all the processes that are running on the system. If one of them does not respond and I want to finish its execution, what order should I enter?

**ps -> Find its PID**

**kill -9 PID**

Indicate how I can launch a background process. What are the advantages of running it like this? What about the output of a program that is running in the background?

**command & -> The benefit is that you can multitask programs as the shell interpreter is free, the output is shown in the screen, but you can redirect it onto a file**

## **History:**

Write down how I can know the last commands I have executed in the shell.

**history**

Write down the command I have to use to see all the commands I executed in the past that contain the string “ls”.

**history | grep “ls”**

Write down how to repeat the execution of the last executed command.

**Up arrow or !!**

Write down how to repeat the execution of the command I executed exactly 15 commands before.

**!-15**

Indicate how to repeat the execution of the last order entered on a keyboard that does not have arrows.

**!!**

I need to re-execute an order I executed 30 orders ago. How can I re-run it without rewriting it? Simplicity in the answer will be valued.

**!-30**

Write down how to repeat the execution of the last command that begin with "ddd".

**!ddd**

Indicate how to repeat the execution of the penultimate order entered on a keyboard that does not have arrows. Simplicity in the answer will be valued.

**!-2**

## **Grep / Chmod / WC / Compgen:**

Briefly explain what information is stored in the /etc/passwd file. Enter the order needed to get the number of lines in this file.

**It stores user account details (username, UID, GID, home directory, shell)**

**wc -l /etc/passwd**

Write down the steps I have to follow to count the number of users logged in. The used commands must show the final number.

**who** **| wc -l**

Write the complete command that must be entered to add read permissions to the owner of a file called "read.txt", preserving the rest of the previous permissions.

**chmod u+r read.txt**

Write down the steps I have to follow to count the number of users logged in. The used commands must show the final number.

**grep "/bin/bash" /etc/passwd | wc -l**

Write down the command I must use to find all the lines that contain the word “Debug” inside all the .c files that belong to the current directory.

**grep "Debug" \*.c**

Write down the command I must use to find all the lines that do not contain the word “IGNORE” inside all the “.csv” files that belong to the current directory.

**grep -v "IGNORE" \*.csv**

Write down how to know what commands in the system begin with “pa”.

**compgen -c pa**

## **Other:**

Write down how to redirect the error output of a command to a file.

**any command 2>> nameErrorFile -> Appends the errors**

**any command 2> nameErrorFile -> Overwrites the previous errors in the file**

I am the "user2" user of a system with the file hierarchy shown below. In my current Shell I am located in the /var/tmp working directory. Indicate 3 alternatives to change the current work directory to my personal home of my user.

**cd or cd ~ or cd /home/students/UO…**

Write down the use of the tab key when working with the Shell (bash).

**It helps autocomplete commands, file names, and directory names, also prevents spelling mistakes and speeds up typing.**

The first line of a rule inside a Makefile is:

left : right1 right2

Explain the relationship between "left", "right1", "right2"

**left is called a target and right1 and right2, dependencies. left depends on right1 and right2 so if right1 or right2 last modification time is newer than that of left, a new version of left should be built.**