B1 - Unix & C Lab Seminar

B-CPE-100

Day 01

Unix Environments

1.1

{EPITECH.}

Task 00 - Multiple inteligence and grit

Before doing anything, we would like you to answer as honestly as possible to the following forms:

- Do you have grit?
- Multiple intelligences

It will help you better understand your cognitive functioning and help us better understand the students in global.

First things first - Intranet & Manifesto

Using the intranet, register for all of the week's activities.
Now, take a moment to read the document given alongside this one : "the manifesto", to understand **our values**.

Linux - Discovering your environment

First, take some time to discover your working environment (keywords, commands,…)
Then learn how to lock your workstation, it might prove very useful.

TASK 01 - CREATE A DELIVERY DIRECTORY

Create a directory named `delivery` in your home directory's root.
Within that directory, create another one named `task01`, which will contain:

- an empty file named `test01` with the default permissions,
- a file named `test02` containing "**If you don't struggle, you don't improve.**". Everyone must have the rights to read and execute this file, but only you can write in it,
- a symbolic link (symlink) named `test03`, which is a reference to `test02`.

Read the **ln** man carefully!

TASK 02 - Z

Create a file `delivery/task02/z`, which displays the character '**Z**' followed by a line feed (\n) when the binary `cat` is used to read it:

```
Terminal
~/B-CPE-100> cat -e z
Z$
~/B-CPE-100>
```

TASK 03 - MIDLS

Write in `delivery/task03/midLS`, a command that lists the current repository's files and directories (without hidden files, ellipses, or files starting with a dot) sorted alphabetically.
Files and directories should be separated by commas and directories must end with a slash.

Add execution permission to everyone

Access your repositories - git and github.com

From this point onwards, all your projects will have to be turned-in in a Github repositories.
Github repositores are simply **git repositories** hosted on github.com.
So first, create an account on github.com using your Epitech email address.

If you already have a GitHub account, you can simply add your Epitech's email address to the list of emails linked to your account.

On GitHub, all your Epitech's projects will be grouped in an organization. If you check your emails, you should already have been invited to the Epitech organizations for this year. Accept this invitation using the link in the mail.

If you've not received an invitation email, please make sure you're correctly registered **to the project** on the intranet.

Okay, now you're in the organization. And for this first time, you're even now part of a team of this organizations which give you access to the repository to delivery today's work.

For every project, you will have an invitation email to join a group on GitHub and thus have access to the project's dedicated repository.

Okay, now generate an ssh key named `id_rsa` and add it to yout GitHub account. This key will allow you to authenticate with github (and thus accessing your repositories) via your terminal.
One last thing : be sure to authorize the previously added ssh key for use with single sign-on on GitHub.com.

For more information, see the document "How to turn-in" on the intranet (here).

DO A DELIVERY - CLONE A REPOSITORY AND PUSH YOUR WORK

Now, it is time to check if the previous part really works. To do so, we are going to clone the repository for todays tasks.
The repository is available for git at the following address:
git@github.com:EpitechIT$ACADEMICYEAR/B-CPE-100-$CITY-1-0-cpoold01-$LEADER.git

Where $ACADEMICYEAR stands for the current academic year (2020 for the 2020/2021 academic year), $CITY is a three letter code indicating your city and $LEADER is the name of the project group leader (for the pool, you're alone: you are the leader).

You can check on the organization page of GitHub to see the list of all the repositories you have access to.
From a repository webpage, you can click on the "Code" button to have access to the repository link (to clone it using SSH).

If it worked, you should have a result similar to:

Terminal

```
~/B-CPE-100> git clone git@github.com:EpitechIT2020/B-CPE-100-STG-1-0-cpoold01-jona
into 'B-CPE-100-STG-1-0-cpoold01-jonathan1.nau'...
warning: You appear to have cloned an empty repository.
Checking connectivity... done
```

Now, You have to move all task directories (previously created) into the repository of the day.
Then, you have to inform "git" of your wish to **add** these files.
After that, you have to **commit** a new local revision which contains all these modifications.
Finally, you have to **push** this revision to the remote server.
From now on, commit and push at the end of each task.

Make sure that the file permissions have not been altered during the copy/move.

Have you read the document on the intranet already?

TASK 04 - MR_CLEAN

Write a file named `mr_clean` - stored at the root of the repository of the day - a command to find and delete every file from the current directory and all subdirectories which end by `~` or which start **and** end by `#`.
Give execution rights to the owner of the file.

Only one command is allowed (no ";", neither "&&" or anything…)

Read carefully the manual of `find`

TASK 05 - PUSH_THAT.SH

Write a shell script (using bash as shell) named `push_that.sh` at the root of your repository.
The script must add all of the current folder's files and push them to the repository.
The script must take a commit message as parameter and should be able to handle simple problems and still push your files.

having trouble figuring out how to retrive parameters? `man bash`.

Where you're writing a script, dont't forget the **shebang**!
Don't forget to give execution right to shell scripts as well!

Don't use this script if you share a repository with other people. It's not good practice.

TASK 06 - TREE

Reproduce the folders structure displayed below.

Terminal

```
~/B-CPE-100> tree -FQ task06 | head -n 32

"task06"
|-- "1910s"/
|   |-- "1911" -> "../Solvay Conferences on Physics/The theory of radiation and
    quanta"/
|   `-- "1913" -> "../Solvay Conferences on Physics/The structure of matter"/
|-- "1920s"/
|   |-- "1921" -> "../Solvay Conferences on Physics/Atoms and electrons"/
|   |-- "1924" -> "../Solvay Conferences on Physics/Electric conductivity of metals
     and related problems"/
|   `-- "1927" -> "../Solvay Conferences on Physics/Electrons and photons"/
|-- "1930s"/
|   |-- "1930" -> "../Solvay Conferences on Physics/Magnetism"/
|   |-- "1931" -> "../Solvay Conferences on Chemistry/Constitution and
    Configuration of Organic Molecules"/
|   |-- "1934" -> "../Solvay Conferences on Chemistry/Oxygen, and its chemical and
    biological reactions"/
|   `-- "1937" -> "../Solvay Conferences on Chemistry/Vitamins and Hormones"/
|-- "1940s"/
|   `-- "1947" -> "../Solvay Conferences on Chemistry/Isotopes"/
|-- "1950s"/
|-- "Professors"/
|   |-- "Frederic Swarts"
|   |-- "Hendrik Lorentz"
|   |-- "Paul Karrer"
|   |-- "Paul Langevin"
|   `-- "William Jackson Pope"
|-- "Solvay Conferences on Chemistry"/
|   |-- "Constitution and Configuration of Organic Molecules"/
|   |   `-- "chair" -> "../../Professors/William Jackson Pope"
|   |-- "Isotopes"/
|   |   |-- "chair" -> "../../Professors/Paul Karrer"
|   |   `-- "participants"/
|   |-- "Oxygen, and its chemical and biological reactions"/
|   |   `-- "chair" -> "../../Professors/William Jackson Pope"
|   `-- "Vitamins and Hormones"/
|       `-- "chair" -> "../../Professors/Frederic Swarts"
```

Terminal

```
~/B-CPE-100> tree -FQ task06 | tail -n 24
`-- "Solvay Conferences on Physics"/
    |-- "Atoms and electrons"/
    |   `-- "chair" -> "../../Professors/Hendrik Lorentz"
    |-- "Electric conductivity of metals and related problems"/
    |   `-- "chair" -> "../../Professors/Hendrik Lorentz"
    |-- "Electrons and photons"/
    |   |-- "chair" -> "../../Professors/Hendrik Lorentz"
    |   `-- "participants"/
    |       |-- "A. Einstein"
    |       |-- "E. Schrodinger"
    |       |-- "H.A. Lorentz"
    |       |-- "M. Planck"
    |       |-- "M. Sklodowska-Curie"
    |       |-- "N. Bohr"
    |       |-- "W. Heisenberg"
    |       `-- "W.L. Bragg"
    |-- "Magnetism"/
    |   `-- "chair" -> "../../Professors/Paul Langevin"
    |-- "The structure of matter"/
    |   `-- "chair" -> "../../Professors/Hendrik Lorentz"
    `-- "The theory of radiation and quanta"/
        `-- "chair" -> "../../Professors/Hendrik Lorentz"

30 directories, 23 files
```

Git handles empty directories differently.

TASK 07 - TAR

Create a compressed (with Gzip) tarball of the content of the previous task's directory.
Delivery: `task07/task06.tgz`

man tar