

# Report of Project: Linux\_toolbox

## Operating System and Linux Administration

---

---

### Table des matières

Report of Project: Linux_toolbox Operating System and Linux Administration .	1
Introduction: .....	1
Summary of the project: .....	1
Conception of the archive structure: .....	1
Scripts: .....	2
Conclusion: .....	4

#### Introduction:

This project aims to make us apply everything we learn in the Operating System and Linux Administration course and make it something. We will be doing this project using the same pair of students as the TP.

#### Summary of the project:

The project asks us to deliver a toolbox composed of a set of commands, file systems and configuration files. Those will serve as a base to create and manage a file system for students and teachers for their courses.

We will see how to store every bit of information required for a student and a teacher for a course. The handling of editing it. And the access of that information remotely.

#### Conception of the archive structure:

First, we started to read every question before writing any script.

By doing so we were able to design the configurations files we would need later on.

We also were able to describe the directory tree: [1]

By understanding the information we need to handle we made the following structure for the semester.info file [2]

The semester.info gives us the directory structure. We decided to store information based on modules. By doing so, we know the common structure of every module above them. That also means that a UE cannot exist without a module. We store the year and the semester linked to what has been entered before. By doing so we reduce a maximum, the number of entries and redundancy and we avoid using complex way of storing a tree.

Adding to this structure, we also store important data needed by some users like the coefficient of the UE, the teacher in charge of this module and their mail. And the tie of evaluation in this module with also its coefficient.

We also made the structure for the semester.conf which gives us the information about who can access a file and what is their rights. [3]

#### Scripts:

In order to use the toolbox the user needs to use a main script called "linux\_toolbox.sh". Each time this script is called, the user needs to specify his role. He can choose between two roles (Administrator and teacher/student).

He is then asked to input his username.

From this script, the user will be able to launch every other script.

#### Question 1:

The following schema [4] give us an understanding of what script is executed and the order in which they will be executed.

#### Script summary:

The user is asked how he wants to create his semester directory. Two options are given to him. Import a .info file (the format of the file is "year-semester.info") or manually input every information necessary.

#### -Import semester sheet

We ask for the path and the script will look for it. It will check if it's in the right format and then verify if the directory does not already exist.

#### -Create semester sheet

The script contains multiple user inputs in order to create the .info file.

A verification is made to be sure not to create 2 times the same semester. After that the script will create the directory tree if no errors are found.

#### *Question 2:*

The following schema [4] give us an understanding of what script is executed and the order in which they will be executed..

Script summary:

##### **-Add directory**

Given a path, if the parent exists a new directory can be created thanks to the name given in argument. Before creating it, we will check in the .conf if the user has the right to do this action.

Then it is given the option to the user to go to "Add directory" or "Delete directory" passing the argument already existing. If not the script ends.

##### **-Delete directory**

Given a path, if the directory exists and the .conf give the user the right to do this action, the directory will be deleted.

Then it is given the option to the user to go to "Add directory" or "Delete directory" passing the argument already existing. If not, the script ends.

#### *Question 3:*

The structure of the question one is taken as a base. With that we will see in details the step of "Import semester sheet" [6] then "Create semester sheet" [7]. The schema [1] given before is still the structure we follow. A sub script [8] was made to add new user rights on a directory.

#### *Question 4:*

We added a progression value linked to a folder in the .info file. That script [9] give us the possibility to create a "devoir" with his progression registered. The script [10] give us the possibility to update it.

#### *Question 5:*

The script makes you able to add or edit a grade or a specific devoir.

#### *Question 6:*

This is basically the same script [12] but we use the gnuplot library.

This result in view in a web browser [13].

More precisely a .txt [14], .conf and a .html are created, and they are all temporary

#### *Question 7:*

This section is split in two parts.

The first one is the visualization. It consists of a basic question and echo of the choice made. [15]

The second script is quite the same but here we just ask the user to input his question or remark. [16]

### Conclusion:

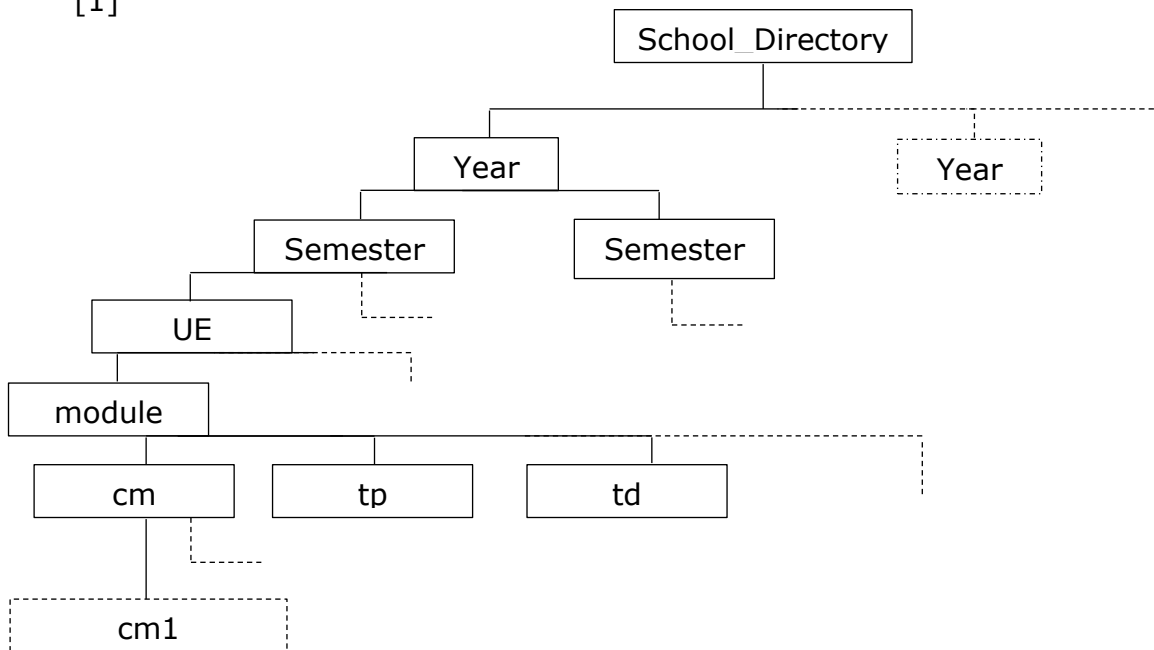
This management toolbox is quite interesting because every script is independent and all of them are using information from the same config files.

Despite the tedious amount of code dedicated to verifying every input the logic behind each script is quite simple on the first hand.

The only obstacle remaining was the amount of work needed to be made in a new environment for us. Because we are still in a learning curve in terms of project methodology, adding the complexity of remote work made the project more challenging and made us unable to finish the work asked.

### Supplementary documents:

[1]



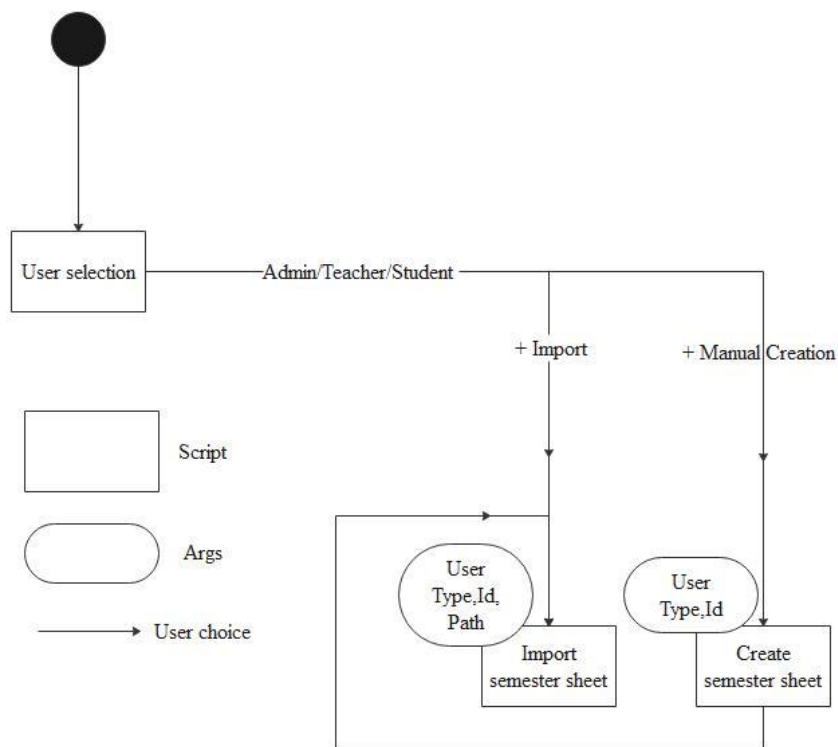
[2]

```
1 year|semester|ue|module|tp|td|cm|coefficient|teachers:teachers_mail|grade_type:grade_coefficient|work:percentage:grade
2 2019|2|Sciences|Mathematics|0|2|4|3|Rodriguez:rodriguez@x.com,maria:maria@x.com|td:0.2,tp:0.4,cm:0.4|cm1/Devoir_Paul_Dissertation1:25:17
```

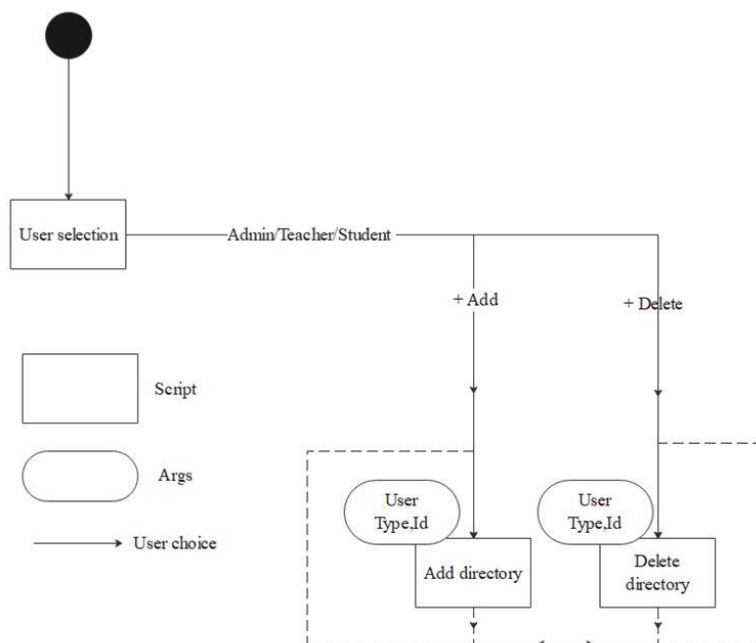
[3]

	path	read	write	execution
1	Sciences/Mathematics/cm/cm1/	u:Rodriguez,g:Class2	u:Rodriguez	u:Rodriguez,g:Class2

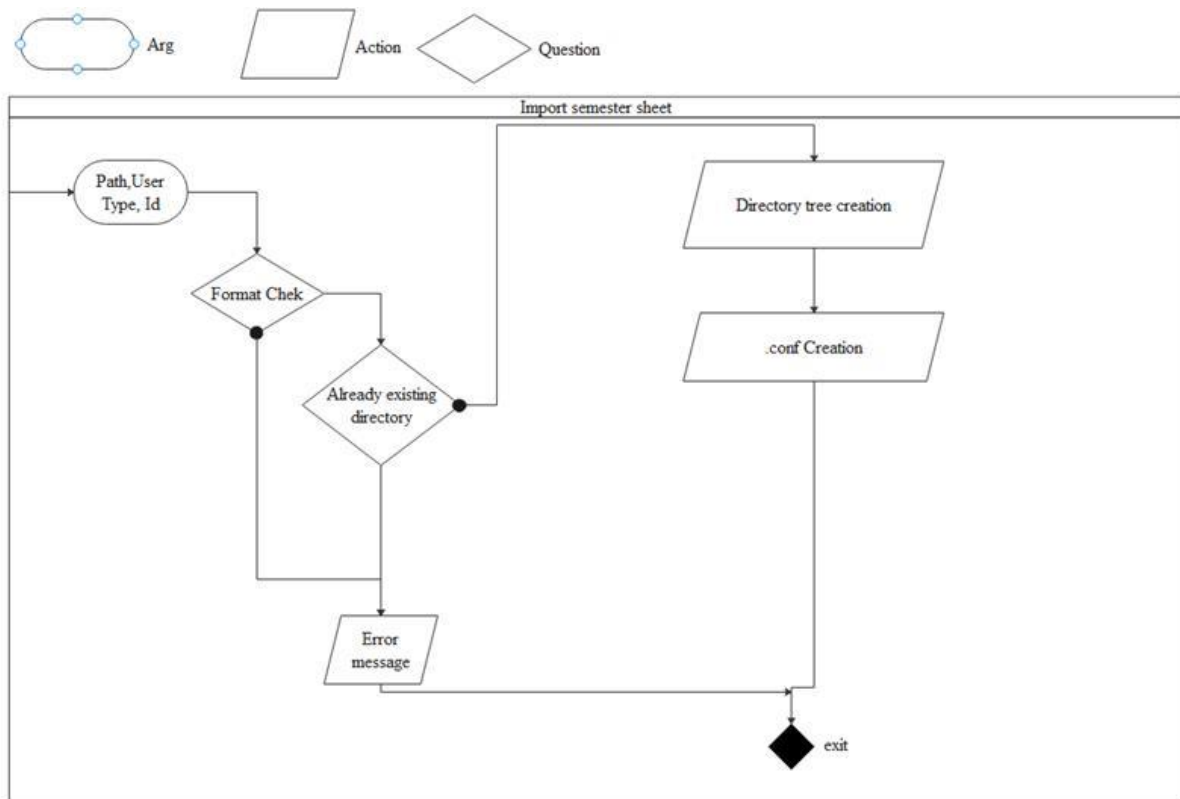
[4]



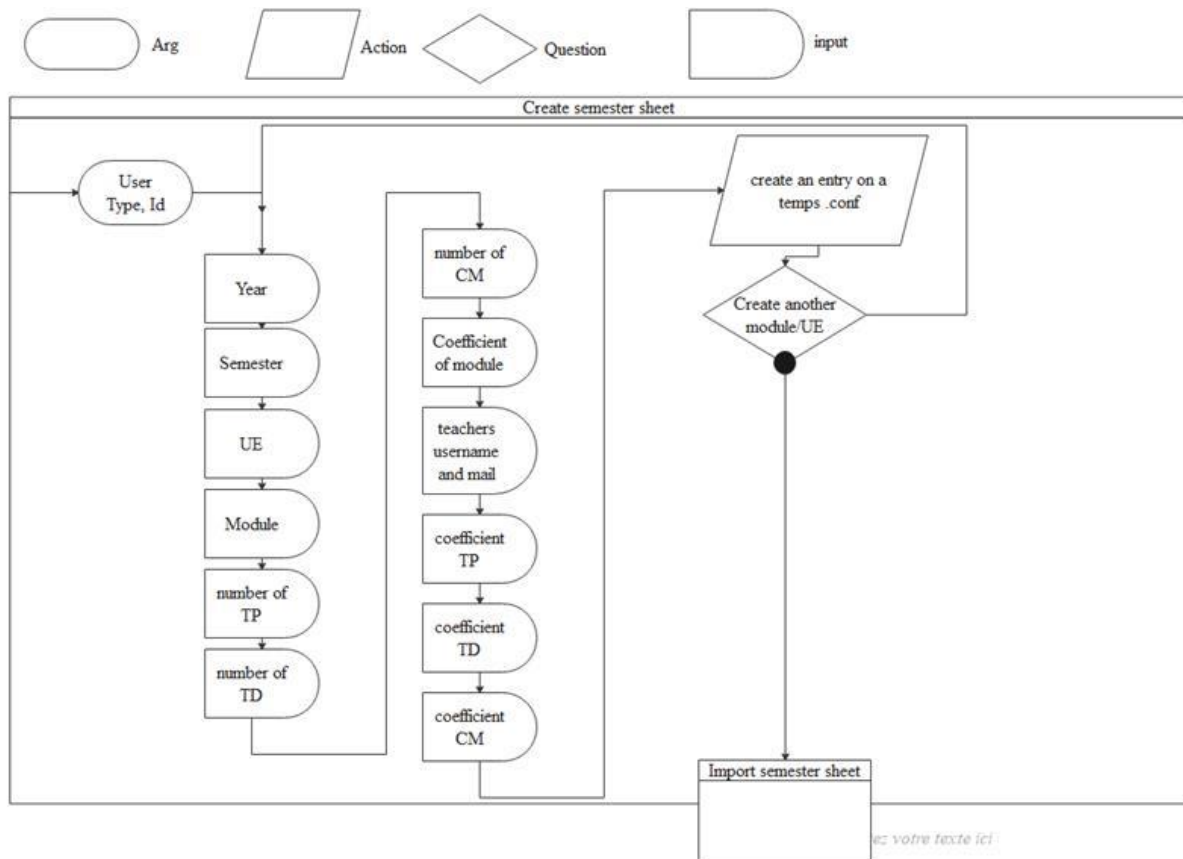
[5]



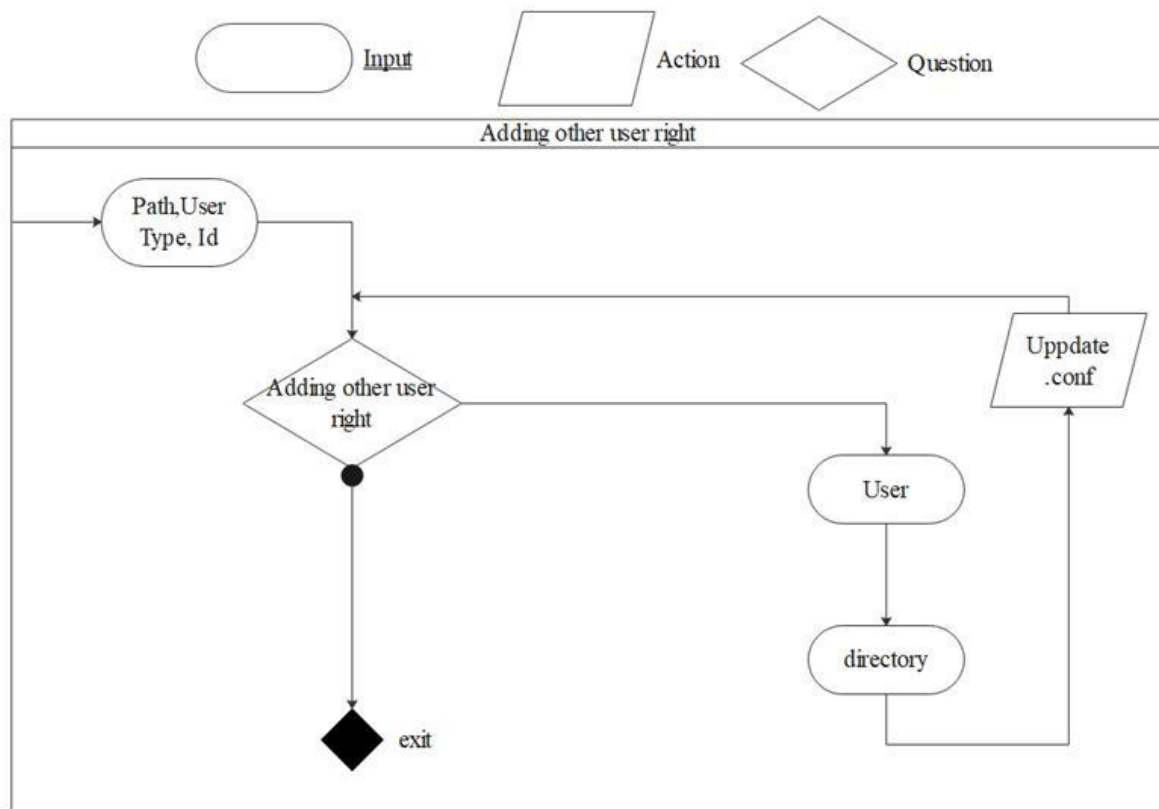
[6]



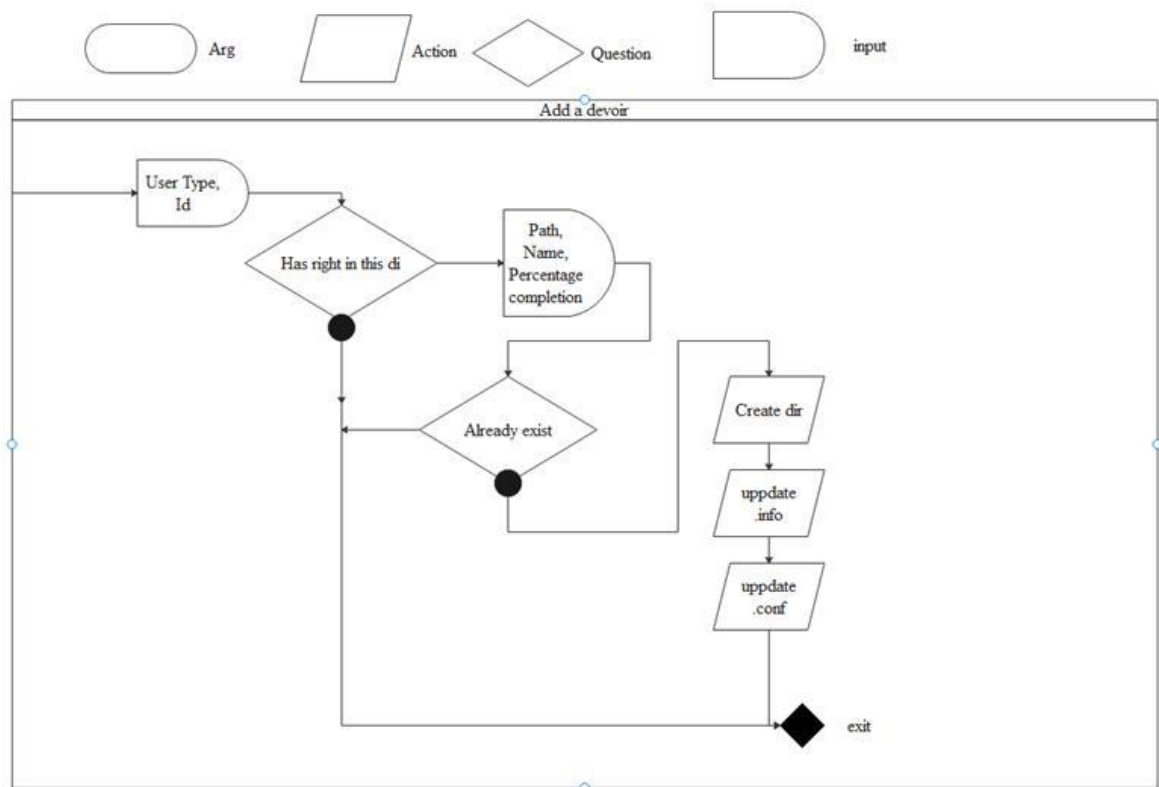
[7]



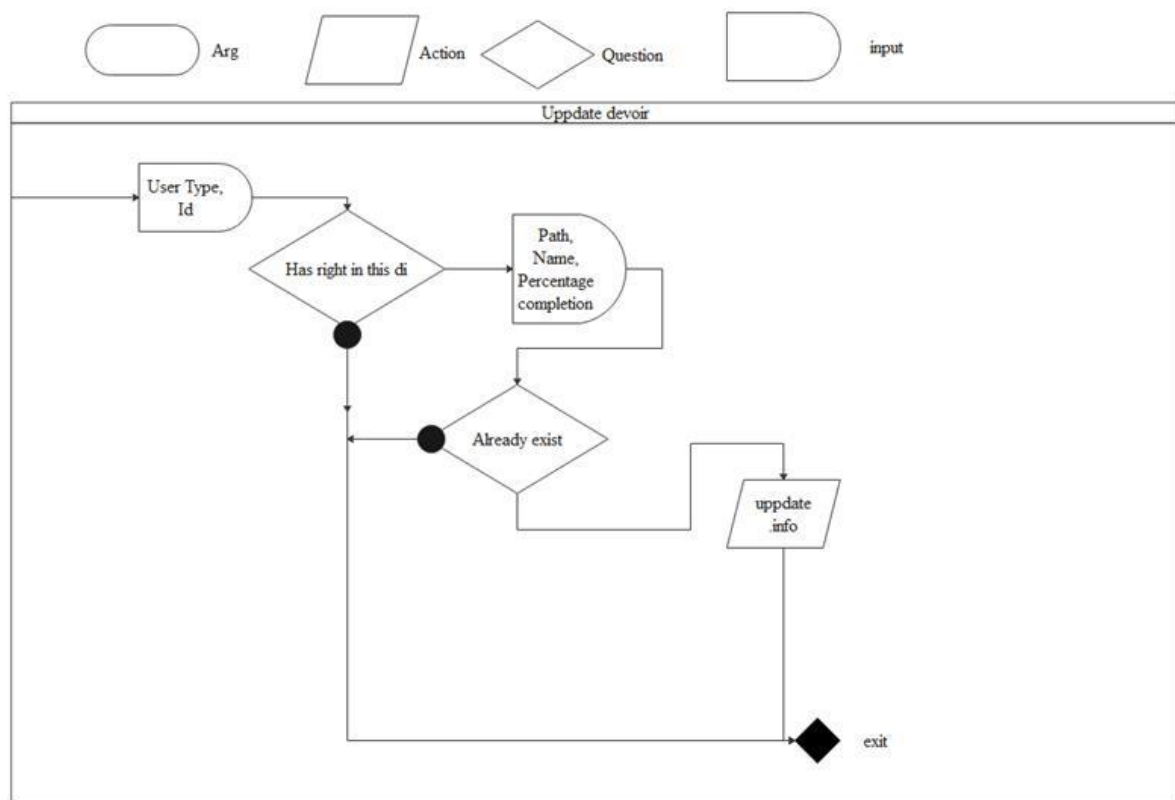
[8]



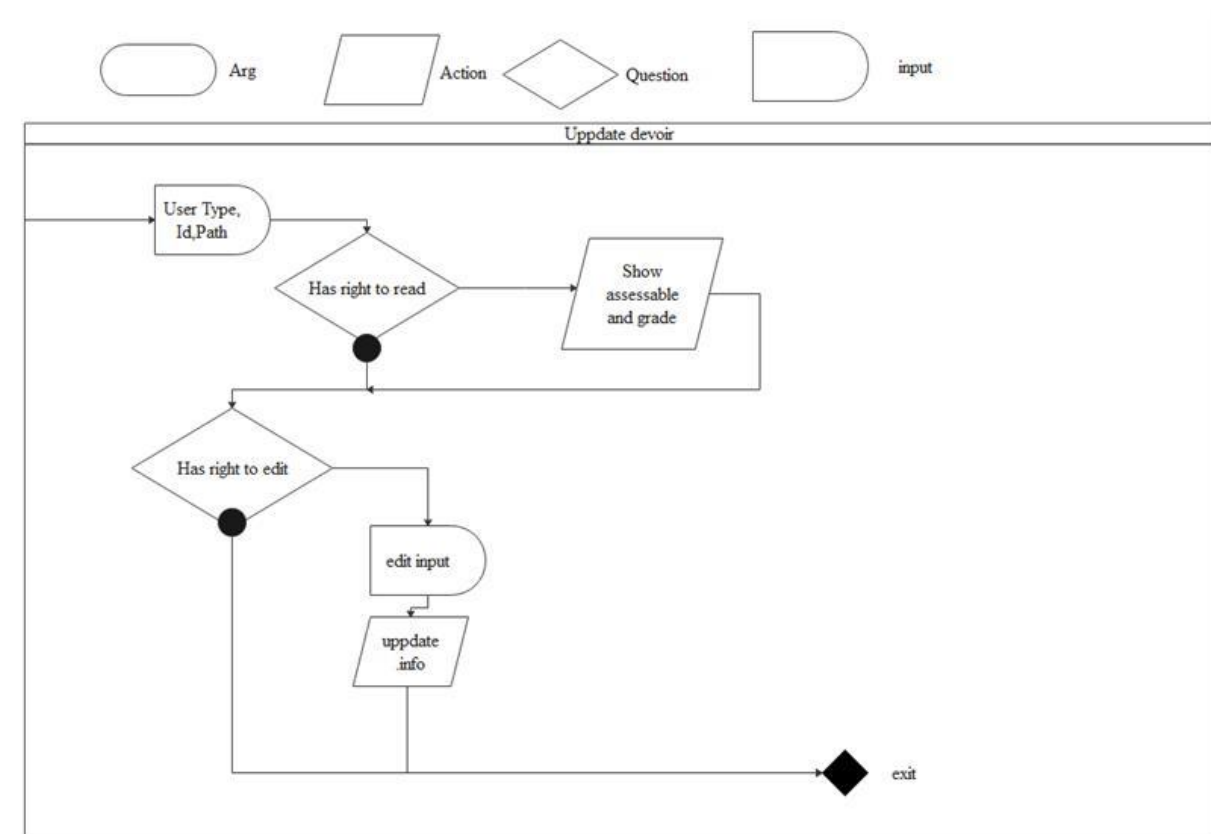
[9]



[10]

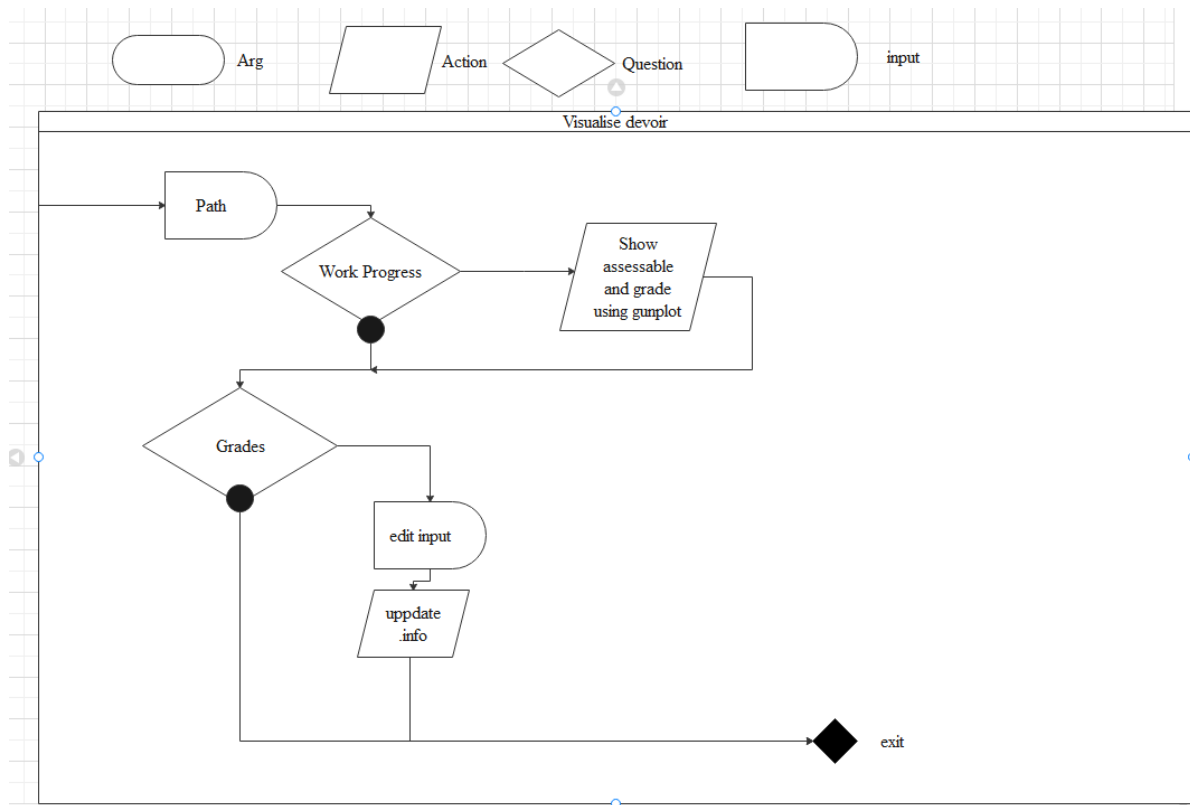


[11]

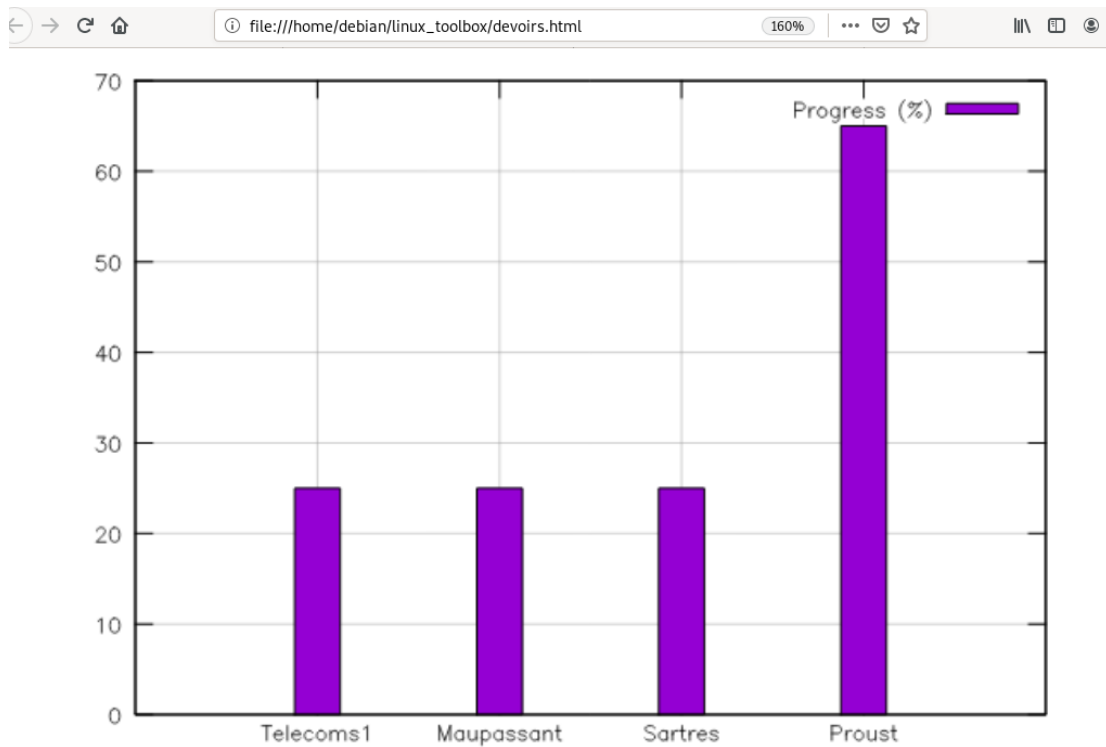




[12]



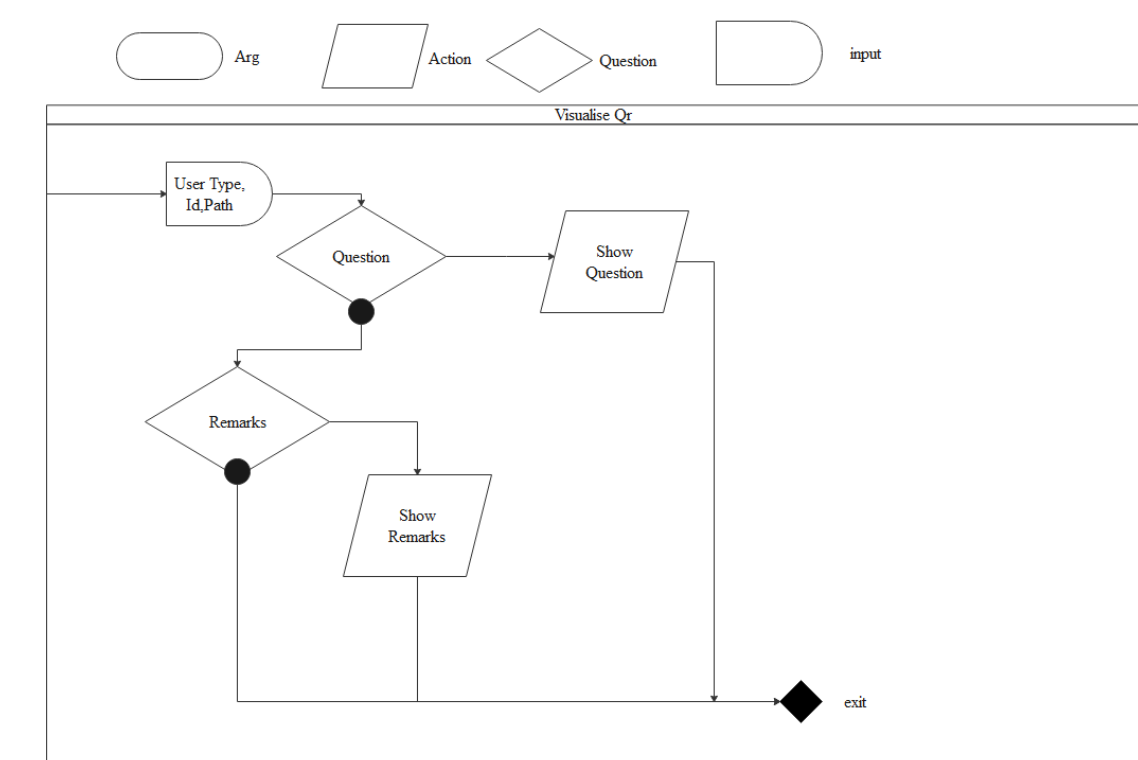
[13]



[14]

```
#####
# Select user type: #
# 1) Administrator #
# 2) Student/Teacher #
#####
Username: Jordan
#####
# Choose an action : #
# 1) Import semester #
# 2) Create semester #
# 3) Add course #
# 4) Delete course #
# 5) Add user/group to a course #
# 6) Delete user/group from a course #
# 7) Add a devoir #
# 8) Edit devoir progression #
# 9) Grade a devoir #
# 10) Visualize my work progress/grades #
# 11) Write down a question/remark #
# 12) Visualize questions/remarks #
#####
10
2019
Write the year of the semester: 2019
1
Write the name of the semester: 1
#####
# What do you want to see on the graph: #
# 1) Work progress #
# 2) Grades #
# 3) Both at the same time #
#####
```

[15]



[16]

