# Laboratory #3: Choose your distribution

*Unix (420-321-VA) - Fall 2021*
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**Goals:**

1. Explore different GNU/Linux distributions
2. Experiment different desktop environments
3. Hands-on: shell commands

## Instructions

### Part I: GNU/Linux distributions

You've been recently exposed to different GNU/Linux distributions in class, and now you should search online for the most popular distributions in 2021. Select at least 3 distributions from to visit their website and read further about their project. Research online, read about other people's experiences and opinions.

1. List at least 3 distributions of your choice, and briefly describe the project / company / community, in your own words, talking about why you selected them, and what are their strengths and weaknesses in your point of view.

Most of those distributions will offer "live install" images, which contain bootable systems to be used totally on the RAM memory, without modifying any files on disk. This is mainly used for testing purposes, but most live systems will offer an easy installation process from the running system. In Debian, this is done with the Calamaris installer.

Search for "Debian live" and you will get several images available with different desktop environments. For Ubuntu and Fedora, the regular installer relies on a live system. You just need to select to start the live system and, with the system running, select to install on the hard disk.

2. Select at least one more distribution to experiment, either just as a live image or with a full installation in another partition of your disk, or even in a virtual machine. Justify your choice.

If you want to install multiple systems in your disk, I suggest you boot using a live system, plug your disk to partition it using the Disks application and free up some space before you start the installation process (the filesystem cannot be mounted for partitioning). You can also use the Disks application to format a partition of your disk as NTFS, to be able to access it from Windows.

3. Use the Disks application to familiarize yourself with disks partitioning. As described above, you can either prepare the space for another linux installation, or create a partition formated with NTFS. Describe your process.
4. Compare the experience you had so far with: (a) the Debian regular installation process; (b) the Debian live install (Calamaris); and (c) a live image or installer of another distribution.

**Part II: Desktop environments**

Explore at least one alternative to the desktop environment you currently have installed. *Lxde* is a light desktop environment that should be a good fit even if you don't have too much spare resources. The steps below will guide you through the installation of *lxde* through the command line in a Debian system. Feel free to experiment with other desktops and/or other distributions.

1. Open a terminal.
2. Change your user to root (the administrator) with the command "su -".
3. Enter the root password.
4. Run the command "apt install lxde" (if you already have lxde, install xfce4).
5. As part of the installation process you might be asked about which display manager to keep (this is the application that manages logins), I suggest you use gdm3.
6. Once the installation is complete, reboot your system.
7. Once you get to gdm again (the login application), select the username, then click on the settings icon to select your new desktop environment before you enter your password to login. After the correct selection, login.
8. Explore the environment by yourself for a while: menus, settings, preferences, background.
9. Go on  Preferences, Customize look and feel. Experiment with different choices for widget, color, icon theme, mouse cursor, etc.
10. After changing the default look, open a couple of applications and take screenshots to give me a taste of your environment.
11. Briefly compare all the desktop environments that you have experimented so far, including Gnome3, from the OSBoxes virtual machine.

*If you have enough disk space available*, you can install several desktop environments and use a different one each time. However, if your machine gets out of space, you will need to remove packages to be able to continue working with it (which is not a trivial task), or it might be easier to go for a clean installation just with the new environment you chose. In order to see what are the requirements for each of those "greedy" environments (especially KDE/GNOME-derived), you could search online for "kde hardware requirements 2020" or "gnome hardware requirements 2020", and so on, and take your conclusions based on that. Use the command "df -h" and look for the line that represents the base of your filesystem ("/")  to check if you have more space available to install additional desktop environments.

**Part III: Hands-on: shell commands**

Try to practice giving **short options** together (using a single "-") and also experiment with **long options** ("--").

To **re-run a command**, you can access it by pressing up arrow.

Also, you can run **several commands in sequence**, separated by semicolon (";").

su (-)

apt install <package>

df (-h -T)

stat (to be practised in conjunction with touch)

touch (-d -t -m -a)

pwd

mount (-t)

umount

rmdir (-v)

rm (-i -R -f)

cp (-n -u -i -f -r -p)

mv (-n -u -i -f )

**Part IV: Deliverables**

1. Open LibreOffice to create your lab document.
2. Include a header with course name, section, your student name, the license of your work (suggestion: one of the creative common licenses).
3. For part I, answer questions 1 and 4.
4. For part II, include your screenshots and answer question 11.
5. For the hands-on section, you should expand your table of commands (initiated in lab #2) to record your learning journey. You should select a few options and explain their purpose, and also record a few of your command executions (not the output, just command, options and arguments).
6. Export your file as PDF and upload it to Omnivox.

**Thanks!**