DOTA: - Laboratory #1 (Familiarization)

This laboratory is just to familiarize yourself with the laboratory. You start looking at the Unix (Ubuntu native, and Ubuntu VM) systems, which will be used for most of the labs. Afterwards you can look at the Windows system.

1 Lab 1, part 1: Getting started in the lab with UNIX

Reboot, select Ubuntu, and you may give your usercode and your password:

```
login: t09XXXXX
Password: XXXXXXXX (the password is not displayed when you type it)
```

The very first time, login as `t09XXXXX`, with password `XXXXXXXX`. When the login procedure is completed you should see the GUI, and be able to select programs from the menus and run them. It is not too different from operating Windows systems, although it is common on UNIX systems to use a terminal window to type in commands. You can open up a terminal window by clicking on the icon. You can use the `yppasswd` command to change the login password to something else if you wish. If you later forget this login password, ask Chan Tim Fook (`chantf@comp.nus.edu.sg`) to reset your password. Make sure you type it correctly (it asks you twice).

Check that the password is OK, by logging out, and then logging back in again. Assuming you can log in OK, you can do the following short task, to get a mark for this part (part 2) of laboratory 1:

- Open a terminal window (ctrl-Alt-T).
- Use the `md5sum` (File Checksum Integrity Verifier) program to find the MD5 checksum of file `/usr/local/share/vms/SEEDUbuntu-20.04.zip`. You will use this checksum as a security code when you get your mark.
- Access the DOTA grading website, and enter your username, password, and the MD5 checksum, along with whatever you want to give yourself as a mark:
  `https://hugh.comp.nus.edu.sg/DOTA/lab1/gradeslab1-1.php`
  You can give yourself whatever mark you believe you deserve.

1.1 Some points...

The following points are to be noted for Unix in general and also Linux:

1. Unix is case sensitive. Most commands are lowercase.
2. Unlike Windows, Unix has no drive letters (A: B: C:). Everything is in some directory, starting at / (the "root" directory - you can find this in the graphical file browser by selecting the osXXX item on the left). Unix uses forward slash (/) to separate directory names, while Windows uses backslash (\). The * wildcard is treated uniformly by Unix shells. In Windows, * works differently for different programs.
3. It is worthwhile to look first at the manual page of a command: `man man`

The lab machines are on a private network, so it is not possible to connect to them from the outside. However, from the lab machines, you can connect to the outside.

To transfer your files elsewhere, eg. for backup, printing, etc., one easy way is to use a thumb drive. If you plug in a thumb drive, after a while, an icon should appear on the desktop. You can drag and drop files to and from the thumb drive. When you are finished with the thumb drive, right-click on it, and select **Unmount**. This is much safer than just pulling the thumb drive out of the PC. It is a good idea to backup your work.

2 Lab 1, part 2: Trying out Virtual Machines

In later laboratories, you will be using virtual machines to do laboratories. Both the Windows and Linux OS have VM software installed (called VirtualBox), and a default VM that you can copy and use. Lets try running the virtual machine on Linux. We begin by starting the Virtual Box software. You can run it in a terminal (virtualbox), and then make it a favourite, so that next time it is on your desktop.

One issue that is important to remember, is that VMs are large - they take up Giga-bytes of storage on disk. A snapshot of a running system may be 8GB! Your home UNIX directories are stored on a remote server, and so if you run a VM from your home directory, it would result in lengthy transfers of data to and from the remote server, filling up the server disk and slowing EVERYONE down. For this reason, you must run the VMs locally on each machine, setting things up so that the VM "virtual disk", and the snapshots are stored locally, in /tmp/.....

Copy the Ubuntu VM Virtual disk to a temporary folder on the local machine, by starting the "Terminal" app, creating a user's own workspace under `/tmp`, and copying an Ubuntu VM disk folder (`SEEDUbuntu-20.04`) to the user's workspace. You can use the following commands (`$USER` means the current user - if you happen to be `t0191234`, then `$USER` will be `t0191234`):

```
$ mkdir /tmp/$USER
$ cd /tmp/$USER
$ unzip /usr/local/share/vms/SEEDUbuntu-20.04.zip
```

To create a new virtual machine from the image you have downloaded, follow these instructions:

`https://github.com/seed-labs/seed-labs/blob/master/manuals/vm/seedvm-manual.md`

Note that you should select the VM virtual disk, and also set the snapshot folder to /tmp/$USER/Snapshots.

The very first time, login as `seed`, with password `dees`. When the login procedure is completed you should see the GUI, and be able to select programs from the menus and run them. It is not too different

from operating Windows systems, although it is common on UNIX systems to use a terminal window to type in commands. You can open up a terminal window by clicking on the icon. You can use the `passwd` command to change the login password to something else if you wish. If you later forget this login password, you may have issues :) Make sure you type it correctly (it asks you twice).

Ubuntu does not allow `root` to login directly from the login window. You have to login as a normal user, and then use the command `su` to login to the `root` account. The passwords are:

```
User ID: root, Password: seedubuntu
User ID: seed, Password: dees
```

Assuming you can log in OK, you can do the following short task, to get a mark for this part (part 2) of laboratory 1:

- Use the `md5sum` (File Checksum Integrity Verifier) program to find the MD5 checksum of the file `/usr/bin/wireshark`. You will use this checksum as a security code when you get your mark.
- Access the DOTA grading website, and enter your username, password, and the MD5 checksum, along with whatever you want to give yourself as a mark:
  `https://hugh.comp.nus.edu.sg/DOTA/lab1/gradeslab1-2.php`
  You can give yourself whatever mark you believe you deserve.

When you have finished this lab session using Ubuntu Linux you must log out from the system.

3 Lab 1, part 3: Getting started in the lab with Windows

Reboot the machines, and select Windows during the boot process. You should have already been emailed a usercode/password for the labs. The usercode is something like t09XXXXX. The password should be kept for the whole course, as we use it for the grading labs. You can change the password for logging into the lab computers, but the grading system will always expect the original password, so keep it safe. Give your username and your password:

```
login: t09XXXXX
Password: XXXXXXXX (the password is not displayed when you type it)
```

The first time you log in to a particular machine in the laboratory, there will be a delay, as Windows sets things up for you. The next time you log in, it will all be much faster. When the login procedure is completed you should see the GUI, and be able to select programs from the menus and run them.

Assuming you can log in OK, you can do the following short task, to get a mark for this part (part 1) of laboratory 1. This will also give you an opportunity to familiarize yourself with the lab environment, and marking techniques and so on. To get your mark:

- Open a `Cmd` prompt window. If you have not used the command line interface before, this is a good time to start!

- Use the `certutil` (Certificate utility) program to find the MD5 checksum of a file in the `C:\windows` directory: `notepad.exe`. You will use this checksum as a security code when you get your mark.

```
C:\WINDOWS> certutil -hashfile notepad.exe MD5
```

- Access the DOTA grading website, and enter your username, password, and the MD5 checksum, along with whatever you want to give yourself as a mark:

  `https://hugh.comp.nus.edu.sg/DOTA/lab1/gradeslab1-3.php`

  You can give yourself whatever mark you believe you deserve, 1, 10, 100, or even a tasty chocolate fish!

When you have finished this part of the lab session using Windows you must reboot your computer so you can run the Ubuntu OS, and when you leave the lab you should just log out, and leave the machines in Ubuntu, not windows. DO NOT shut down the OS.