

DASL-100.2

C++ Programming and Linux

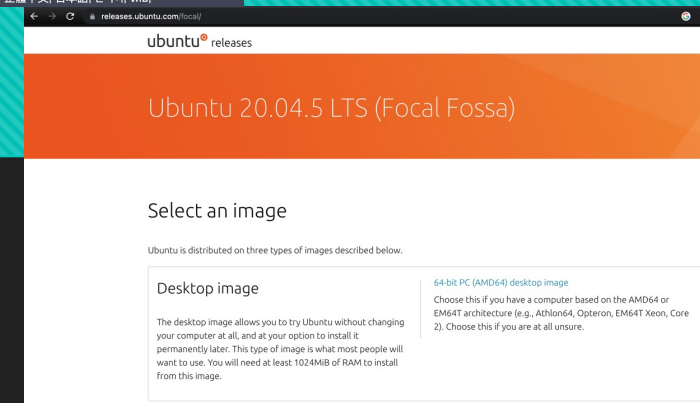
Week 1

- Linux installation
- First programming : “Hello world” in C++

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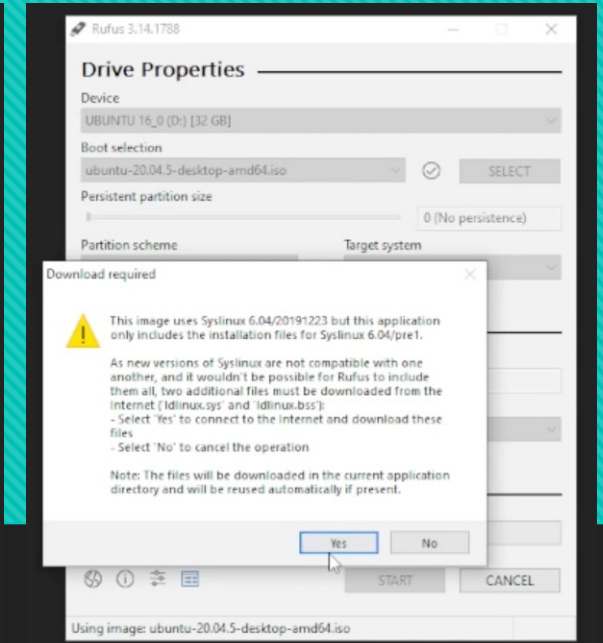
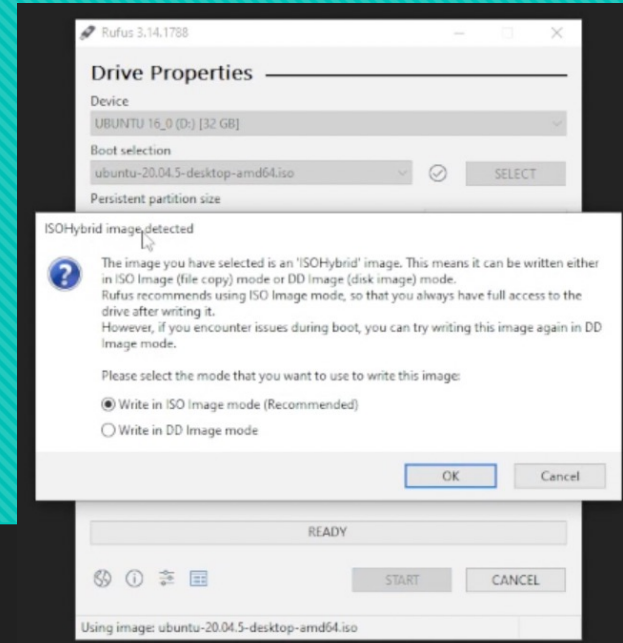
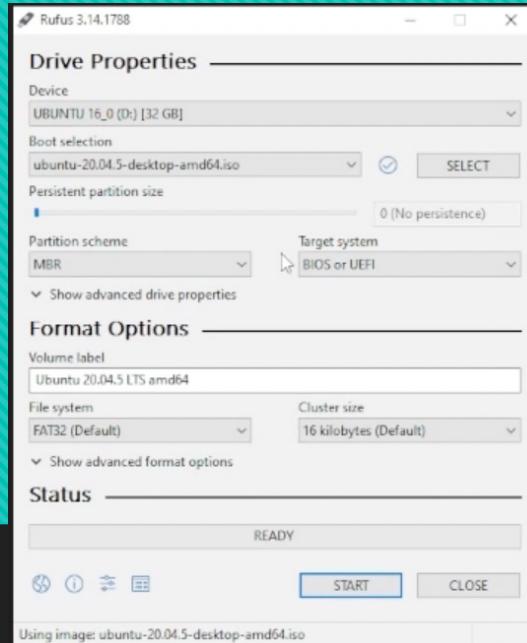
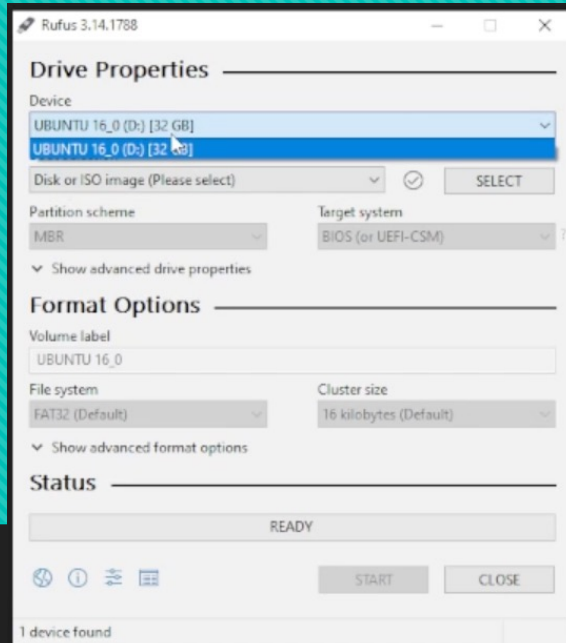
- Three components for a clean installation of Linux (Ubuntu version 20.04.5):
 - Flash drive (formatted completely)
 - Ubuntu ISO files: version 20.04.05
 - Link: [Ubuntu 20.04.5 LTS](#)
 - Bootable flash drive software: Rufus
 - Link: [Rufus 3.21](#)



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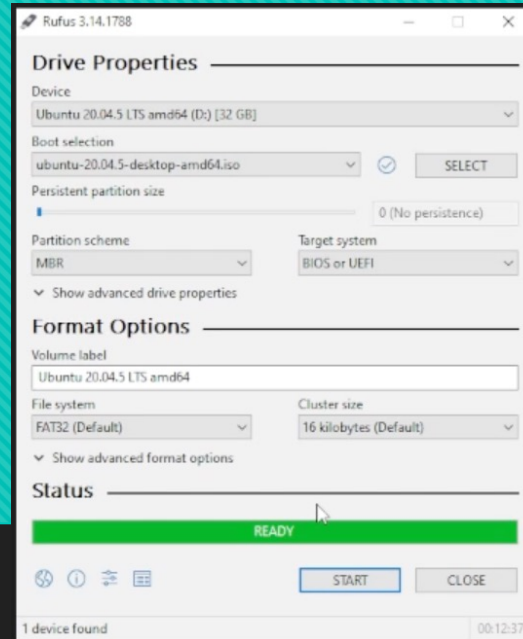
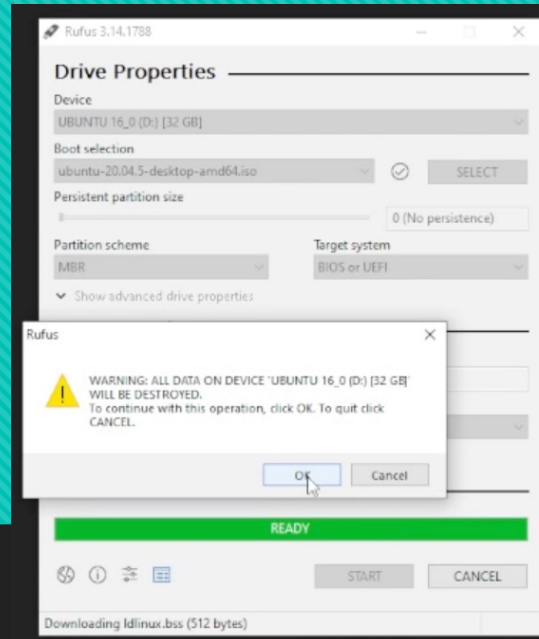
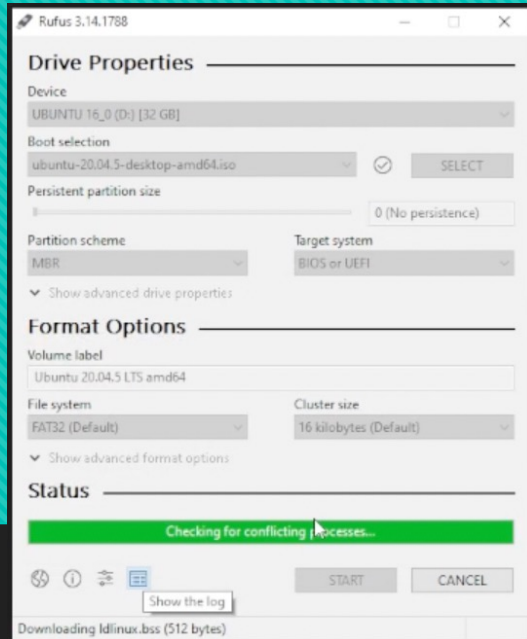
- Setting up Rufus:



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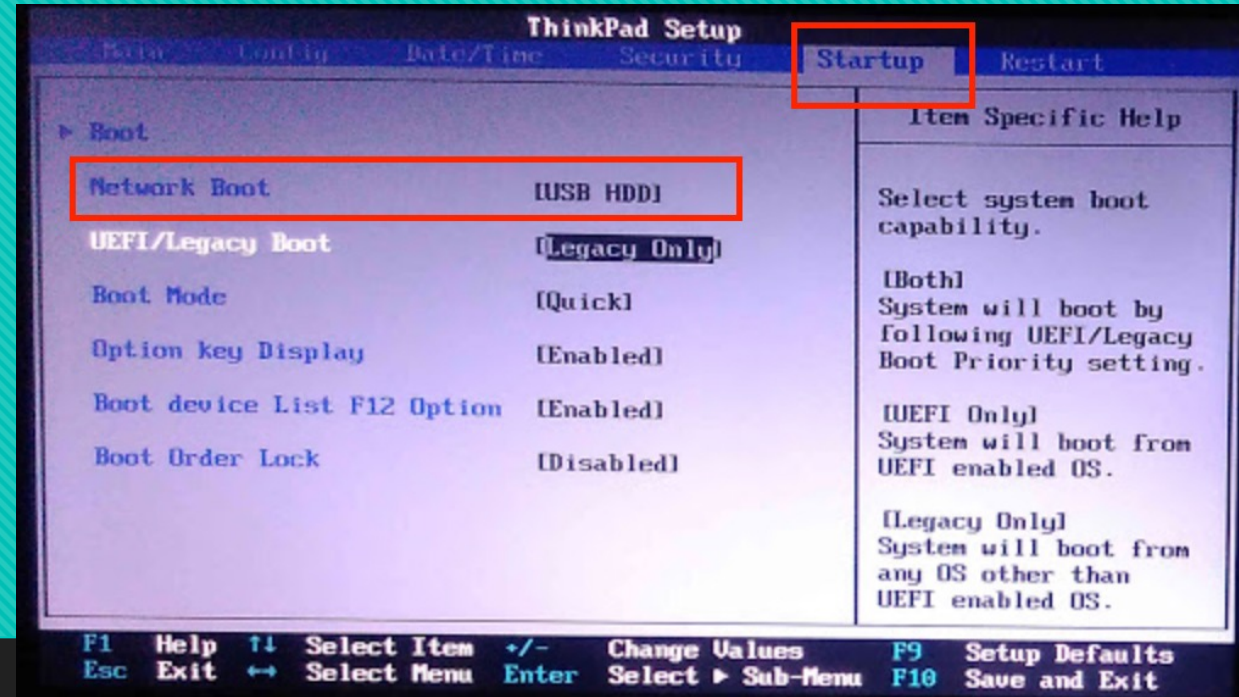
- Setting up Rufus:



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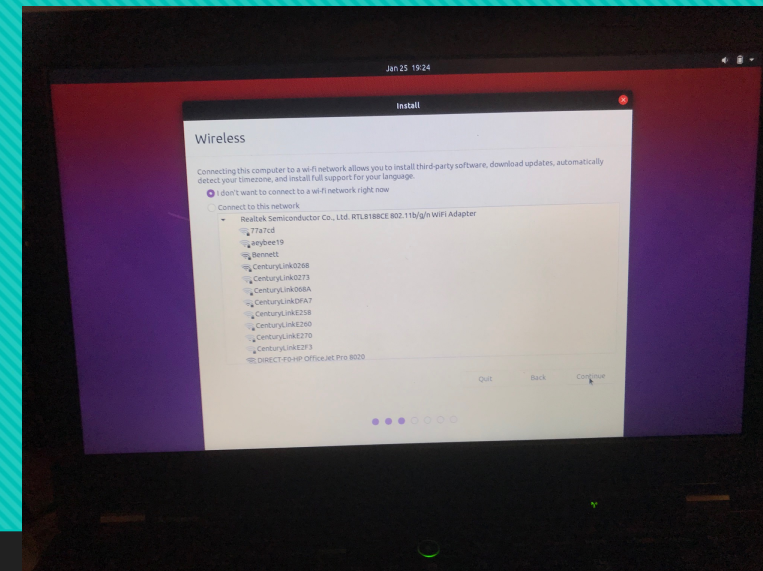
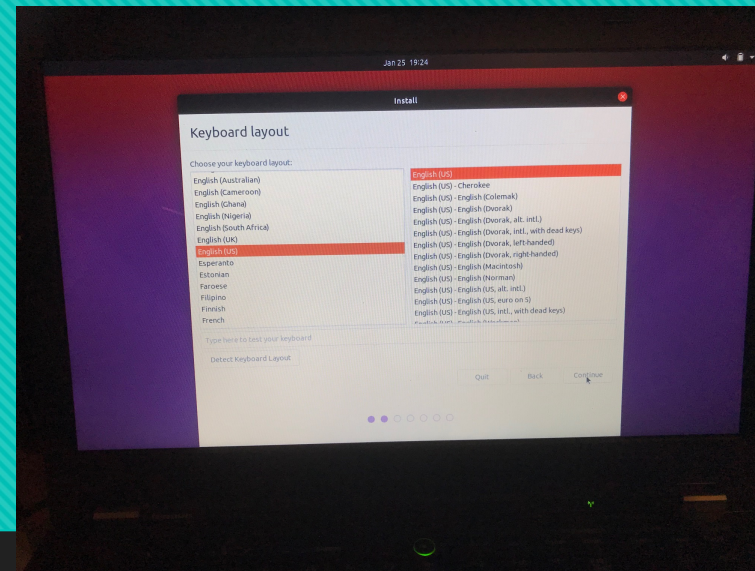
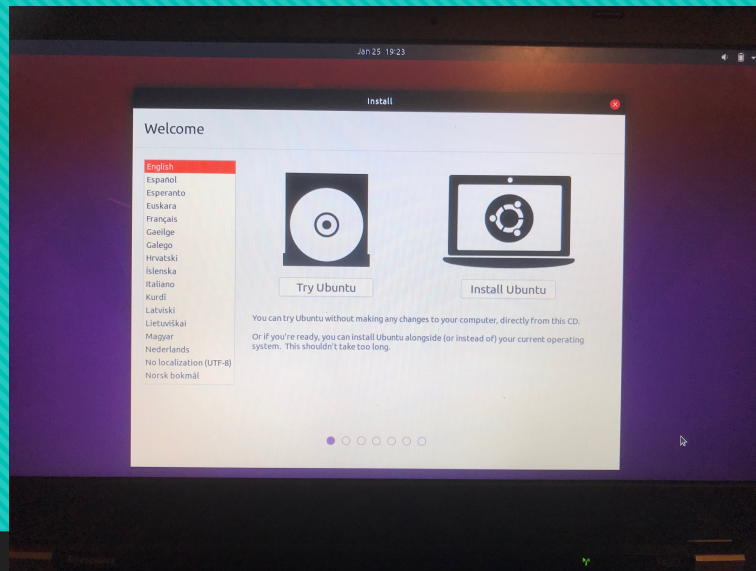
- Boot up a laptop/PC
 - Find BIOS key (i.e. F1, F8 or F10 etc..)
- In BIOS Menu, go to Startup > Network Boot
 - Change boot order to Flash Drive with Ubuntu.
- Save and Exit
- Restart laptop/PC



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- Setting up Ubuntu:



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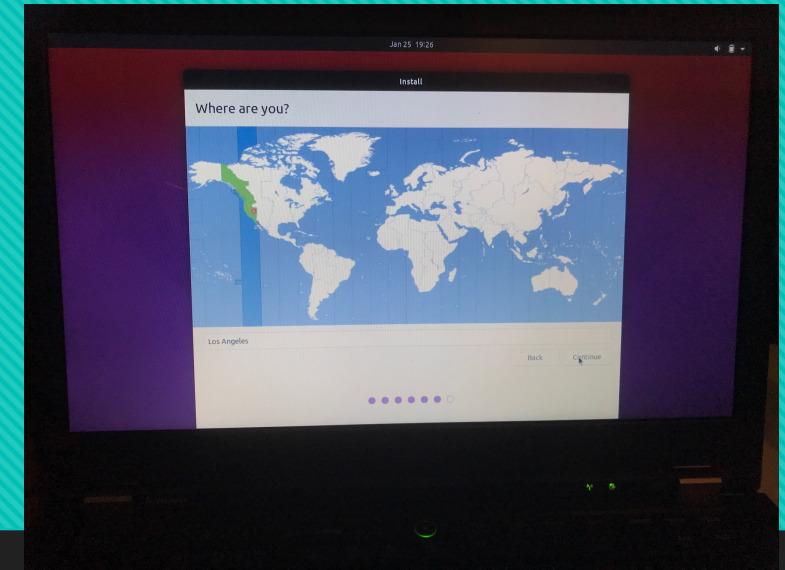
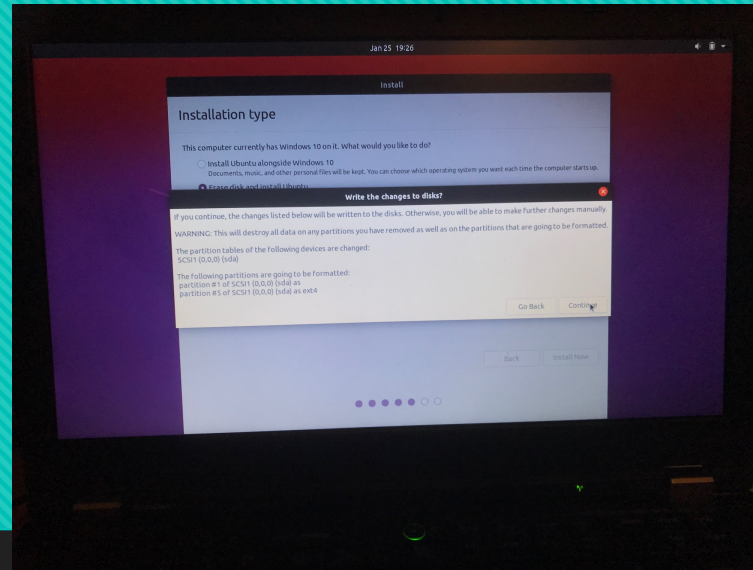
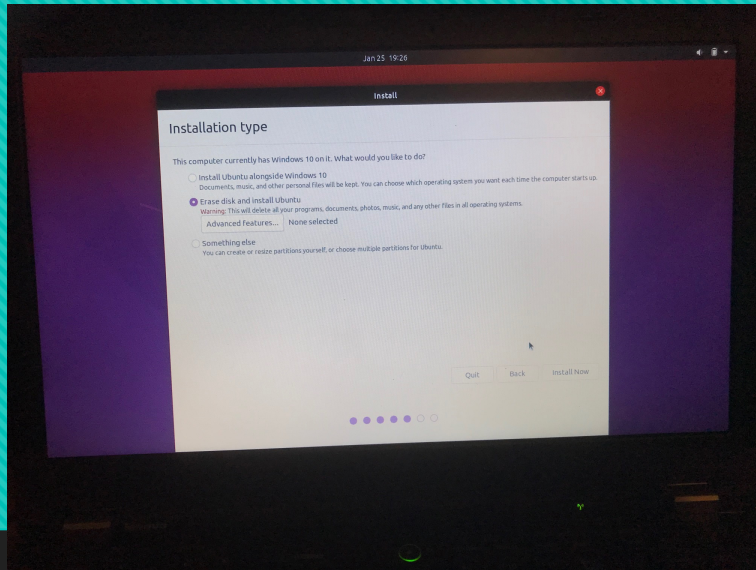
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- Setting up Ubuntu:



Week 1

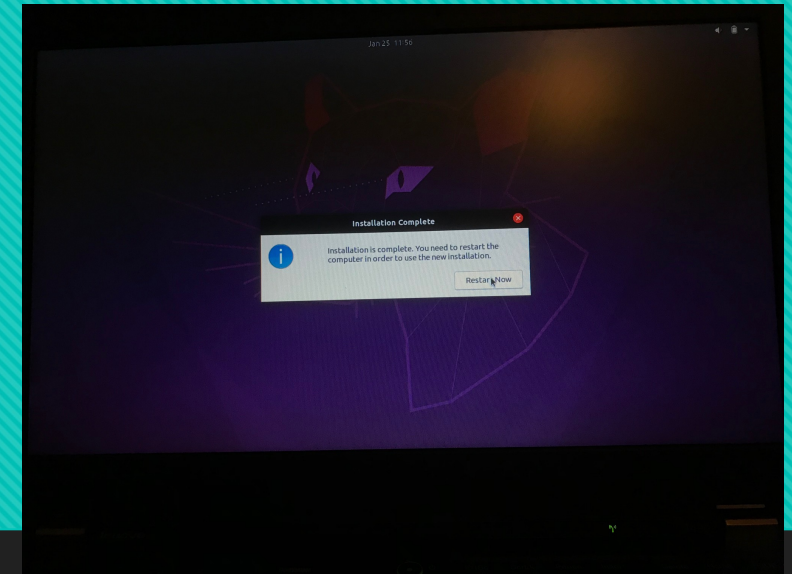
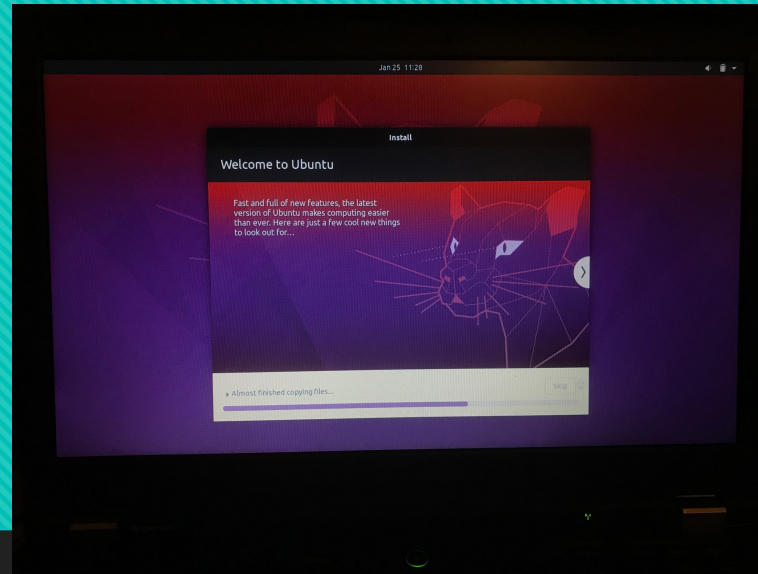
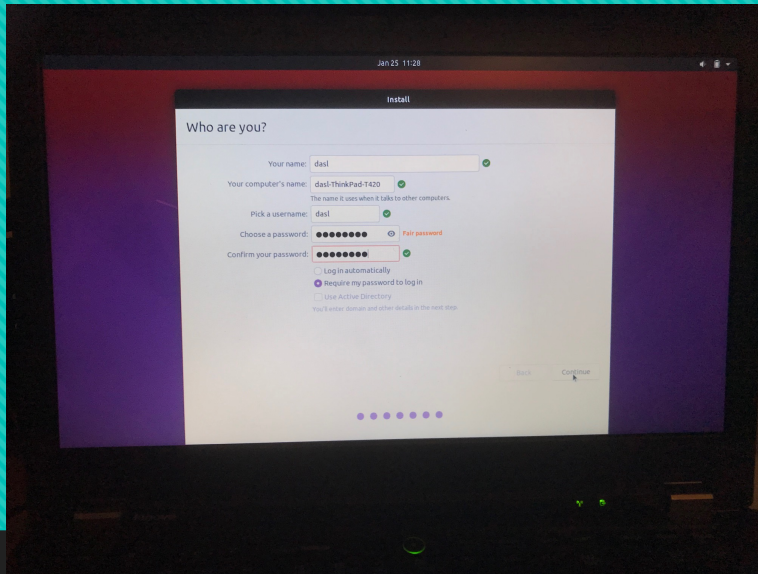
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- Setting up Ubuntu:



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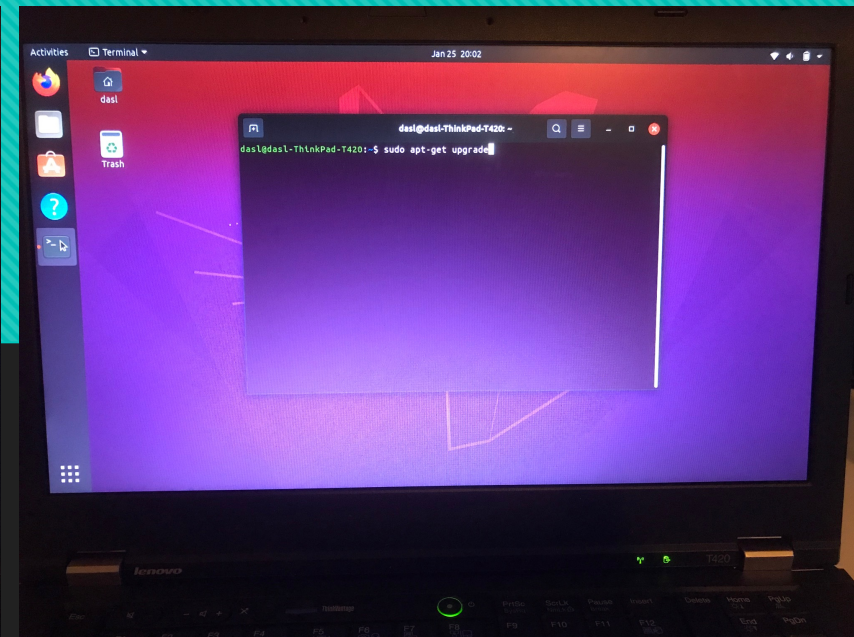
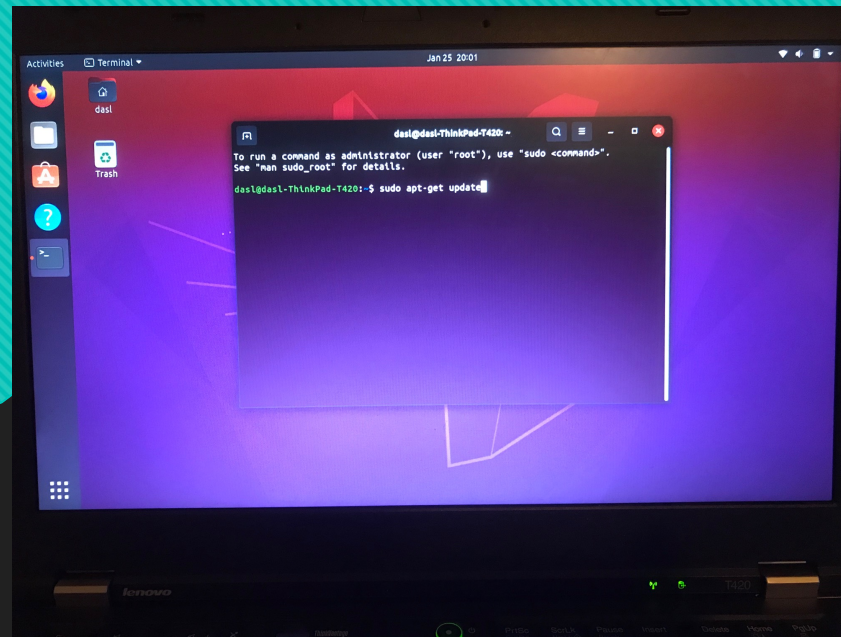
- A list of basic commands in Ubuntu Linux:
 - Source: [Link](#)

Command	Function	Syntax
<code>sudo</code>	Used before a command to run as root or an administrator.	<code>sudo apt-get update</code>
<code>ls</code>	Same as <code>dir</code> , lists the current directory.	<code>ls-ll</code>
<code>cp</code>	Copy file.	<code>cp /dir/filename /dir/filename</code>
<code>rm</code>	Delete file.	<code>rm /dir/filename /dir/filename</code>
<code>mv</code>	Move file.	<code>mv /dir/filename /dir/filename</code>
<code>mkdir</code>	Make a directory.	<code>mkdir /dirname</code>
<code>df</code>	Report file system disk space usage.	<code>df -h</code>
<code>dmesg</code>	Print or control the kernel ring buffer.	<code>dmesg</code>
<code>lspci</code>	Lists all PCI devices.	<code>lspci</code>
<code>lsusb</code>	Lists all USB devices.	<code>lsusb</code>
<code>lsmod</code>	Shows the status of modules in the Linux kernel.	<code>lsmod</code>
<code>cat</code>	Concatenate files and print on the standard output.	<code>cat /dir/logfile</code>
<code>grep</code>	Print lines of the input matching a specified pattern.	<code>grep intel</code>
<code>apt-get</code>	Update installer.	<code>apt-get update</code> , or <code>apt-get upgrade</code>
<code>sosreport</code>	A utility that collects configuration and diagnostic information about your computer. The utility needs to be installed first using the following command line: "sudo apt-get install sosreport." It is recommended you reboot your computer after the install before first running the utility.	<code>sosreport</code>
<code>cat</code> and <code>grep</code> together	Use to list all the instances of a specific search item.	<code>cat /dir/logfile grep intel</code> (the output of this command would print to the default output source any instance of the string "intel")

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- Update Ubuntu:
 - Open terminal and type in command:
 - sudo apt-get update
 - sudo apt-get upgrade



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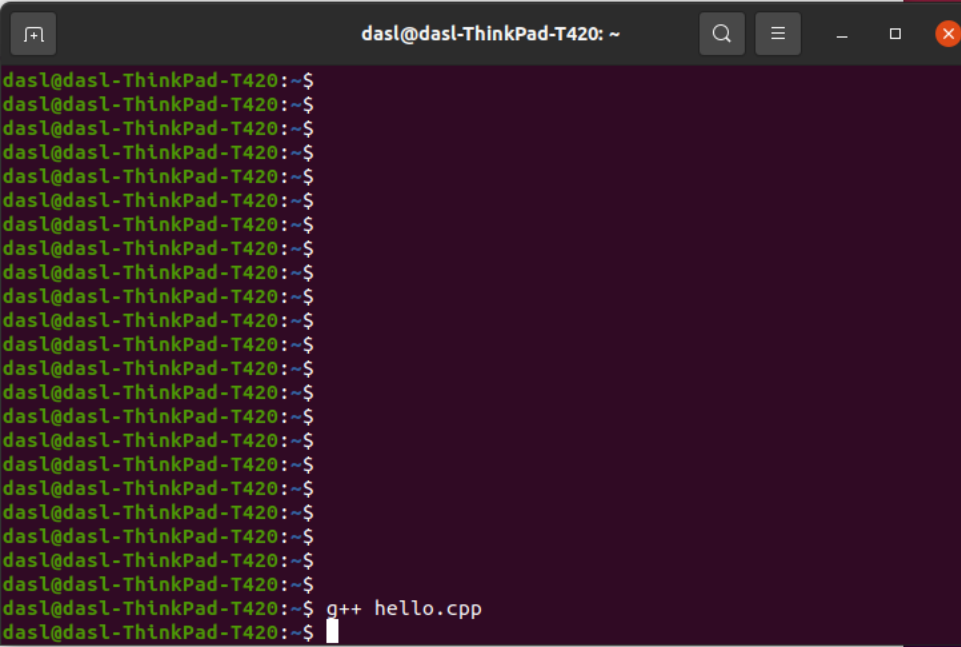
- C++ programming “Hello world!”:
 - Adding header file - `<iostream>`
 - Stands for standard input-output stream.
 - Contains definitions of object such as `cout`.

```
Open *hello.cpp
1 #include <iostream>
2
3 int main(){
4
5     std::cout << "Hello world!" < std::endl;
6
7     return 0;
8
9 };
```

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- Compile hello.cpp file:
 - Open terminal and type in command:
 - g++ hello.cpp



```
dasl@dasl-ThinkPad-T420: ~  
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dasl@dasl-ThinkPad-T420:~$  
dasl@dasl-ThinkPad-T420:~$ g++ hello.cpp  
dasl@dasl-ThinkPad-T420:~$
```

