System information

- **shell commands:**
  - $ cat /etc/issue
  - $ cat /etc/os-release
  - $ hostnamectl

- **GUI:**
  - Clicking on the Settings icon on the upper right, select system setting, then click on the Details tab.

Installing Software on Ubuntu

You can Use the Software Center (GUI app) or related tools (yum, apt-get, rpm, etc.) to install a package that is already compiled but:

What happens when you need to install something on your machine, but the software package isn't available for installing via apt? What if you need to build a software package from source to access the newest features from the latest version of that package? How do I locate the dependencies for the software I need?

- Use the following link to search about packages' name and their dependencies:
  - https://packages.ubuntu.com/

Now, how to compile and install software from source code.

1- Download the Source Code Package and Unpack it:

The source code for software on Linux comes in the form of compressed tar files, which typically have either **.tar.gz** or **.tar.bz2** extensions. The tools that are used for packing the source code into these tar balls are '**tar**'(Tape ARchiver) (used for combining multiple files into one), 'gzip'(.gz) or bzip2(.bz2) (used for compression). To fetch the source code tarball for a particular software you need to know the URL to the tarball.

Once you have the download link, use '**wget'** to fetch the tarball from command line.

```
$ wget <link to the tarball>
```

The above command will download the tarball into the current directory. wget command is very flexible and has lot of options.
Next you needs to unpack the tarball in order to get access to the source code and other files. Depending on the extension, use one of the following commands:

```
$ tar -xzvf <name of tarball with .tar.gz extension>

$ tar -xjvf <name of tarball with tar.bz2 extension>

$ tar -xvf <name of tarball with tar extension>
```

2- Read Install Documentation

Once the software source code is downloaded and extracted, the very first thing that one should do is to go through the documentation. This may sound boring to most of us but this is a very important step as doing this step thoroughly would save you from most of the future problems. The documentation provides information about the software, changes since last version, links to more documentation, information regarding the author of the software, steps for compilation and installation of software etc. So we can see that lots of valuable information is present in the documentation.

This whole information is broadly divided into two files: 'Readme' and 'Install'. While 'Install' covers all the information required for compilation and installation, all the other information is covered in the 'Readme' file. Please note that the name of file and it case may vary.

3- Configuration

Configure the environment for compiling and installing the software on our system. Most of the packages come along with a configuration script that can be used for configuring the environment. The file name for configuration file is mostly 'configure'. This script usually accepts parameters that can be used to control some features of this software. Also this script makes sure that all the tools required for compilation are present in the system.

To learn about the options provided by a specific configuration file, run the following command:

```
$ configure --help
```

To start configuring the build environment, execute the following command:

```
$ ./configure
```

The above command will check and/or create the build environment and if everything goes fine then it produces a file called ‘makefile’. The file ‘makefile’ is used in the compilation of the software.

4- Compilation

Once the makefile is generated, then in the same directory just run the following command:

```
$ make
```

The above command will compile all the source code related to the software. If compilation encounters some problem then error is thrown on the console.

5- Installation

Once the compilation is done successfully then all the required binaries are created. Now is the time to install these binaries in the standard paths so that they can be invoked from anywhere in the system. To do this run the following command:

```
$ make install
```

Note that sometimes installing the software may require root privileges, so one may gain the rights and then proceed with the above command.

References:

https://www.thegeekstuff.com/2012/06/install-from-source/