THE UNIVERSITY OF DODOMA



**COLLEGE OF INFORMATICS AND VIRTUAL EDUCATION**

**CS 321: GROUP ASSIGNMENT 2**

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# DIFFERENCE BETWEEN THE FREE SOFTWARE FOUNDATION AND THE OPEN SOURCE INITIATIVE

### [FREE SOFTWARE FOUNDATION](https://www.fsf.org/about/what-is-free-software) (FSF)

* Is a non-profit organization that supports the development of free software, “free software is the software that grants the user the freedom to share, study, and modify it.” The FSF coined the term in the 1980s.
* The FSF asserts that a free software must adhere to the following [four pillars of freedom](https://fsfe.org/about/basics/freesoftware.en.html) (which are rights and not obligations):
* The freedom to deploy the software for any use case without any restrictions. For example, saying that the license of a program expires after 30 days makes it non-free.
* The freedom to study how the software works and modify it according to your needs and preferences.
* The freedom to freely re-distribute the software to assist someone in need. The redistribution can be done at a cost or at no cost.
* The freedom to enhance the performance of the software and release your enhancements for the community to benefit both programmers and non-programmers.
* The FSF emphasizes that free software is not limited to non-commercial use. A commercial program can allow users to indirectly access the above freedoms.
* Any free software license should give users the ability to benefit from the four pillars of freedom. These licenses can either be protective (copy left) licenses or non-protective licenses.
* Here are three of the most popular type of [licenses](http://www.gnu.org/licenses/license-list.html) that define free software:
* The MIT (Massachusetts Institute of Technology) License: This is a permissive license that places limited restrictions on software reuse.
* The GNU General Public License v2: This copy left license gives users the freedom to run, study, and make improvements to the software.
* The Apache License v2: This is a permissive license that mandates preservation of the copyright notice and disclaimer.
* The BSD Licenses: They are a set of non-copy left licenses that gives minimal restrictions on the use and redistribution of the software.

### [THE OPEN-SOURCE INITIATIVE](https://opensource.org/osd) (OSI)

* Is the non-profit organization that supports the development of open source software, asserts that any open source software must adhere to the following criteria:
* Free redistribution of the software.
* The source code should be publicly available.
* The software can be modified and distributed in a different format from the original software.
* The software should not discriminate against persons or groups.
* The software should not restrict the usage of other software.

Historically, the term free software came before open source. Although both terms have roots in supporting the idea of free software (right to use, study, share, and modify), their objectives and philosophies are different.

The term open source was introduced in the late 1990s in response to the limitations of free software. In fact, the OSI says that it [coined the term](https://opensource.org/history) to “educate and advocate for the superiority of an open development process.”

The organization adds that the term provides “a valuable way to engage with potential software users and developers, and convince them to create and improve source code by participating in an engaged community.”

Therefore, the term open source emphasizes on the practical benefits of “free software”: supporting collaboration on software development projects.

In other words, while open source is a development philosophy that is more business oriented, free software is a social and moral philosophy. That’s why the term open source is more palatable to the corporate world because it places less emphasis on freedom.

# LIST AND BRIEFLY DESCRIBE AT LEAST THREE OPEN SOURCE INTERNET APPLICATIONS THAT ARE CURRENTLY IN USE

### MOZILLA FIREFOX

* Mozilla Firefox is a customizable internet browser and a free open source software. It offers thousands of plugins that are accessible with a single click of your mouse.
* The platform holds [3.98%](https://gs.statcounter.com/browser-market-share) of the worldwide browser market share and it is available for android, iOS, Windows and Linux.
* According to [CNET](https://www.cnet.com/news/mozilla-open-source-firefox-move-helped-rewrite-tech-rules-anniversary/), Mozilla reshaped the technology industry and fanned the flames of open source software that changed the way social networks and operating systems function.

### LIBREOFFICE

* LibreOffice is a complete office suite that offers presentations, documents, spreadsheets and databases.
* Unlike Microsoft Office, which is not accessible for everyone due to its pricing model, LibreOffice is totally free.
* To support it, its users can make donations when they download. So, it has a huge community of contributors.
* It is available for Mac, Linux and Windows and it also has a live chat and a forum where you can turn to when searching for help.

### GIMP

* Is the photo editing tool.
* It offers similar features like some of the expensive tools on the market including various filters and effects, and yet it is free.
* GIMP is available across different platforms including Windows and Linux and it has different 3d party plugins and customization options.

### LINUX

* Linux is one of the most user-friendly open source software on the market. It is most commonly used on Android devices and desktops.
* What makes this operating system different from the others is that it costs nothing and it is incredibly customizable.
* Most companies also choose it because it is highly secure and offers excellent community support

### BLENDER

* It is a 3D graphics and animation tool that supports motion tracking, simulation, animation, video editing, rendering, modeling and much more.
* It also offers a set of modeling tools and features including real-time viewpoint preview, multi-resolution and support for planar tracking and Tripod solvers.

### GNU COMPILER COLLECTION

* GNU Compiler Collection is a collection of compilation tools for software development in the C, C++, Ada, FORTRAN and other programming languages.
* It provides high-quality releases regularly and works with native and cross targets.
* The sources it offers are freely available via weekly snapshots as well as SVN.

### PYTHON

* Python is common programming and scripting language used by custom software developers.
* According to [IEEE](https://spectrum.ieee.org/static/interactive-the-top-programming-languages-2019), it was the most popular language in 2019. In recent years, it attracts plenty of new users because of its fast-growing field of machine learning.
* It is also easy to use which is why most of the developers also choose this open source software.

### PHP

* It is a software development language used for creating websites and other digital platforms.
* It is fast and flexible and powers some of the most popular websites around the globe including Slack and Spotify.

# DESCRIBE THE DUAL LICENSE BUSINESS MODEL AND LIST TWO APPLICATIONS THAT FALL UNDER THIS BUSINESS MODEL

### DUAL-LICENSING MODEL

* is a business model in which a company that markets a commercial software product gives its licensees the choice of two licensing models:
* Open Source and closed source (or "proprietary"). In this business model, a customer can choose to license the software under the terms of an Open Source license such as the GNU General Public License (GPL).
* Open Source licenses let licensees sublicense the product's source code to multiple levels of sub-licensees, but require re-licensing in source code format, usually on identical terms.
* The customer can choose a closed source or proprietary license with more conventional licensing terms that limit his ability to re-license the product, or restrict him to object code sublicenses only.
* The dual-licensing model helps both the free software community and the commercial software licensee. The open availability of source code lets the software be improved by those who have the right to change it under an Open Source license. The proceeds from commercial licensing help fund additional development, and help establish the product as a commercial standard.

WHERE DUAL-LICENSING MODELS ARE APPLIED

* MySQL AB,
* Produces an Open Source database.
* MySQL has two license options
* A commercial license and a modified GPL license, which allows the licensee to distribute MySQL code under GPL side-by-side with other FLOSS licenses. Commercial licensees get a commercially supported product with a level of assurance from MySQL that doesn't require that their MySQL-based software be Open Sourced.
* MySQL can offer a commercial license because it owns the MySQL code.
* TrollTech AS
* Uses a dual-licensing model with its QT product, a C++ application development framework. It charges a per-developer price for its commercial license.
* The two licensing models cover identical code bases.
* The free licensing model is available under the GPL (or the QPL, a free software license that's not that widely used)

# DESCRIBE THE RELATIONSHIP BETWEEN UNIX AND LINUX OSs

### LINUX

* Linux is not Unix, but it is a Unix-like operating system.
* Linux system is derived from Unix and it is a continuation of the basis of Unix design.
* Linux distributions are the most famous and healthiest example of the direct Unix derivatives. BSD (Berkley Software Distribution) is also an example of a Unix derivative.

### A UNIX-LIKE OS (ALSO CALLED AS UN\*X OR \*NIX)

* is the one that works in a way similar to Unix systems, however, it is not necessary that they conform to Single UNIX Specification (SUS) or similar POSIX (Portable Operating System Interface) standard.
* SUS is a standard which is required to be met for any OS to qualify for using ‘UNIX’ trademark. This trademark is granted by ‘The Open Group’.

### **LINUX**

* **Is a UNIX clone** that is developed from scratch by Linus Torvalds and team. It targets for POSIX compliance. The Linux kernel code was completely written from scratch. It is designed in such a way so that it acts like Unix but it does not have the original Unix code in it.
* It is also significant to note that **Linux is just the kernel and not the complete OS**. This Linux kernel is generally packaged in Linux distributions which thereby makes it a complete OS.
* Linux is only the Kernel, while Linux distributions can be treated as the OS. On the other hand, UNIX in itself is a complete OS as everything (all required application tied together) comes from a single vendor. **For Example,** Solaris.
* Linux distribution (also called as a distro in short) is an operating system that is created from a collection of software built upon the Linux Kernel and is a package management system.
* A standard Linux distribution consists of a Linux kernel, GNU system, GNU utilities, libraries, compiler, additional software, documentation, a window system, window manager and a desktop environment.

# BRIEFLY DESCRIBE THE OPEN SOURCE SOFTWARE NAMED GIMP

### GNU IMAGE MANIPULATION PROGRAM

* Is a [free and open-source](https://en.wikipedia.org/wiki/Free_and_open-source) [raster graphics editor](https://en.wikipedia.org/wiki/Raster_graphics_editor) used for [image manipulation](https://en.wikipedia.org/wiki/Image_manipulation) (retouching) and [image editing](https://en.wikipedia.org/wiki/Image_editing), free-form drawing, [transcoding](https://en.wikipedia.org/wiki/Transcoding) between different [image file formats](https://en.wikipedia.org/wiki/Image_file_formats), and more specialized tasks.
* GIMP is released under [GPLv3+](https://en.wikipedia.org/wiki/GNU_General_Public_License) license and is available for [Linux](https://en.wikipedia.org/wiki/Linux), [macOS](https://en.wikipedia.org/wiki/MacOS" \o "MacOS), and [Microsoft Windows](https://en.wikipedia.org/wiki/Microsoft_Windows).
* GIMP is primarily developed by volunteers as a free and open source software project associated with both the GNU and GNOME projects. Development takes place in a public [git](https://en.wikipedia.org/wiki/Git_(software)" \o "Git (software)) [source code](https://en.wikipedia.org/wiki/Source_code) repository, on public mailing lists and in public chat channels on the GIMPNET [IRC](https://en.wikipedia.org/wiki/Internet_Relay_Chat) network.

GIMP itself is released as source code. After a source code release installers and packages are made for different operating systems by parties who might not be in contact with the maintainers of GIMP.

* The [version number](https://en.wikipedia.org/wiki/Software_versioning) used in GIMP is expressed in a *major-minor-micro* format, with each number carrying a specific meaning: the first (major) number is incremented only for major developments (and is currently 2). The second (minor) number is incremented with each release of new features, with odd numbers reserved for in-progress development versions and even numbers assigned to stable releases; the third (micro) number is incremented before and after each release (resulting in even numbers for releases, and odd numbers for development snapshots) with any bug fixes subsequently applied and released for a stable version.