

# **PRACTICAL 3**

## **BASIC UNDERSTANDING ON FREE AND OPEN-SOURCE SOFTWARE**

### **A) Describe Open Source Software with Example.**

**Ans:** Open source software is software with source code that anyone can inspect, modify and enhance.

Open source software does not necessarily mean that executable software is given away for free. It does, however, mean that its source code is available for free.

The term open source refers to something people can modify and share because its design is publicly accessible. The term originated in the context of software development to designate a specific approach to creating computer programs.

Open source software is released through a specific kind of license that makes its source code legally available to end-users. The source code can be repurposed into other new software, meaning anyone can take the source code and distribute their own program from it.

Criteria of Open Source Software:

#### **1. Free Redistribution:**

The license shall not require a royalty or other fee for such sale.

#### **2. Source Code:**

The program must include source code, and must allow distribution in source code as well as compiled form. The source code must be the preferred form in which a programmer would modify the program.

#### **3. Derived Works:**

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

#### **4. Integrity of The Author's Source Code:**

The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

5. No Discrimination Against Persons or Groups:

The license must not discriminate against any person or group of persons.

6. No Discrimination Against Fields of Endeavor:

The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

7. Distribution of License:

The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.

8. License Must Not Be Specific to a Product:

The rights attached to the program must not depend on the program's being part of a particular software distribution.

9. License Must Not Restrict Other Software:

The license must not place restrictions on other software that is distributed along with the licensed software.

10. License Must Be Technology-Neutral:

No provision of the license may be predicated on any individual technology or style of interface.

Examples of Open Source Software are:

1. Firefox: It is a web browser that competes with Internet Explorer.
2. OpenOffice: A competitor to Microsoft Office.
3. Gimp: A graphic tool with features found in Photoshop.
4. Zimbra: Open source e-mail software that competes with Outlook server.
5. MySQL, Ingres and EnterpriseDB: Open source database software packages that each go head-to-head with commercial products from Oracle, Microsoft, Sybase and IBM.
6. Free BSD and Sun's OpenSolaris: Open source version of Unix operating system.

## **B) Describe Free Software with Example.**

**Ans:** Free Software means software that respect user's freedom and community. Free software is computer software distributed under terms that allow users to run the software for any purpose as well as to study, change, and distribute it and any adapted versions.

Roughly, it means that the users have the freedom to run, copy, distribute, study, change, and improve the software.

Free software covers just about every field of computer applications. Because of their high quality and openness, several free software programs have become leaders in their field or comprise the core of an entire industry.

A program is free software if the program's users have the four essential freedoms:

1. The freedom to run the program as you wish, for any purpose.
2. The freedom to study how the program works, and change it so it does your computing as you wish.
3. The freedom to redistribute copies so you can help others.
4. The freedom to distribute copies of your modified versions to other.

Examples of free software are:

1. The Linux kernel – Linux kernel is protected by the GPL, and is used daily by millions of people throughout the world. As the kernel, it is one of the most important components of the GNU system.
2. Apache, the most widely used web server in the world. More than 56% of the web servers on this planet use Apache; far more than its fierce competitors Microsoft and Netscape.
3. The Gimp is a powerful bitmap mode digital creation program. In spite of being relatively new, The Gimp has rapidly become serious competition for Photoshop.
4. PostgreSQL is an object-relational database. It is currently the most sophisticated free software database available.

### C) Difference between Free and Open Source Software.

Ans:

Sr.no.	Free Software	Open Source Software
1.	Free software means software that respects user's freedom and community. Roughly, it means that the users have the freedom to run, copy, distribute, study, change and improve the software. The term free software is sometimes misunderstood it has nothing to do with price. It is about freedom.	Open Source Software is something which you can modify as per your needs, share with others without any licensing violation burden. When we say Open Source, source code of software is available publicly with Open Source licenses like GNU (GPL) which allows you to edit source code and distribute it.
2.	Software is an important part of people's lives.	Software is just software. There are no ethics associated directly to it.
3.	Software freedom translates to social freedom.	Ethics are to be associated to the people not to the software.
4.	Freedom is a value that is more important than any economical advantage.	Freedom is not an absolute concept. Freedom should be allowed, not imposed.
5.	Examples: The Free software Directory maintains a large database of free software packages. Some of the best known examples include the Linux kernel, the BSD and Linux operating systems, the GNU Compiler Collection and C library; the MySQL relational database; the Apache web server; and the Send mail transport agent.	Examples: Prime examples of open source products are the Apache HTTP Server, the e-commerce platform osCommerce, internet browsers Mozilla Firefox and Chromium (the project where the vast majority of development of the freeware Google Chrome is done) and the full office suite LibreOffice.