

Basic understanding on free and open-source software.

a) Describe the Open-source Software with example.

Ans-Open Source Software : 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.

Some examples of open source software are given below:

1.MOZILLA FIREFOX

Mozilla Firefox is a customizable internet browser and free open source software. It offers thousands of plugins that are accessible with a single click of your mouse.

The platform holds [3.98%](#) of the worldwide browser market share and it is available for Android, iOS, Windows and Linux.

According to [CNET](#), Mozilla reshaped the technology industry and fanned the flames of open source software that changed the way social networks and operating systems function.

2. 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

3. GIMP

Another of the best open software source examples that is worth mentioning is the photo editing tool GIMP.

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.

Plenty of illustrators, graphic designers and photographers use it to improve their pictures and enhance their work.

4. VLC Media Player

VLC Media Player is one of the most popular open source software examples that you can use for free.

This multimedia player is used for video, media and audio files and it plays discs, webcams, streams and devices. Most of the users use it for streaming podcasts as well.

It allows you to optimize your audio and video files for a particular hardware configuration and also offers a plethora of extensions and skins which allows you to create customized designs.

What's more, it runs on different platforms such as Android, Mac OS X, Linux, Windows, iOS and more.

5. Linux

According to a [Stack Overflow](#) survey, 83.1% of developers claimed that Linux is the most wanted platform.

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.

b) Describe free Software with example.

Ans- “Free software” means software that respects users’ 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.

1. System Software

A system software aids the user and the hardware to function and interact with each other. Basically, it is a software to manage computer hardware behavior so as to provide basic functionalities that are required by the user. In simple words, we can say that system software is an intermediary or a middle layer between the user and the hardware. These computer software sanction a platform or environment for the other software to work in. This is the reason why system software is very important in managing the entire computer system. When you first turn on the computer, it is the system software that gets initialized and gets loaded in the memory of the system. The system software runs in the background and is not used by the end-users. This is the reason why system software is also known as ‘low-level software’.

Some common system software examples are:

- **Operating System:** It is the most prominent example of System Software. It is a collection of software that handles resources and provides general services for the other applications that run over them. Although each Operating System is different, most of them provide a Graphical User Interface through which a user

can manage the files and folders and perform other tasks. Every device, whether a desktop, laptop or mobile phone requires an operating system to provide the basic functionality to it. As an OS essentially determines how a user interacts with the system, therefore many users prefer to use one specific OS for their device. There are various types of operating system such as real-time, embedded, distributed, multiuser, single-user, internet, mobile, and many more. It is important to consider the hardware specifications before choosing an operating system. Some examples of Operating systems given below:

- - Android
 - CentOS
 - iOS
 - Linux
 - Mac OS
 - MS Windows
 - Ubuntu
 - Unix
- **Device Drivers:** It is a type of software that controls particular hardware which is attached to the system. Hardware devices that need a driver to connect to a system include displays, sound cards, printers, mice and hard disks. Further, there are two types of device drivers: Kernel Device Drivers and User Device Driver. Some examples of device drivers are:
 - - BIOS Driver
 - Display Drivers
 - Motherboard Drivers
 - Printer Drivers
 - ROM Drivers
 - Sound card Driver
 - USB Drivers
 - USB Drivers
 - VGA Drivers
 - VGA Drivers
 - Virtual Device Drivers
- **Firmware:** **Firmware** is the permanent software that is embedded into a read-only memory. It is a set of instructions permanently stored on a hardware device. It provides essential information regarding how the device interacts with other hardware. Firmware can be considered as 'semi-permanent' as it remains permanent unless it is updated using a firmware updater. Some examples of firmware are:
 - BIOS
 - Computer Peripherals
 - Consumer Applications

- Embedded Systems
- UEFI
- **Programming Language Translators:** These are mediator programs on which software programs rely to translate high-level language code to simpler machine-level code. Besides simplifying the code, the translators also do the following :
 - Assign data storage
 - Enlist source code as well as program details
 - Offer diagnostic reports
 - Rectify system errors during the runtime
 - Examples of Programming Language Translators are Interpreter, Compiler and Assemblers.
- **Utility:** Utility software is designed to aid in analyzing, optimizing, configuring and maintaining a computer system. It supports the computer infrastructure. This software focuses on how an OS functions and then accordingly it decides its trajectory to smoothen the functioning of the system. Softwares like antiviruses, disk cleanup & management tools, compression tools, defragmenters, etc are all utility tools. Some examples of utility tools are:
 - - Avast Antivirus
 - Directory Opus
 - McAfee Antivirus
 - Piriform CCleaner
 - Razer Cortex
 - Windows File Explorer
 - WinRAR
 - WinZip

2. Application Software

Application Software, also known as end-user programs or productivity programs are software that helps the user in completing tasks such as doing online research, jotting down notes, setting an alarm, designing graphics, keeping an account log, doing calculations or even playing games. They lie above the system software. Unlike system software, they are used by the end-user and are specific in their functionality or tasks and do the job that they are designed to do. For example, a browser is an application designed specifically for browsing the internet or MS Powerpoint is an application used specifically for making presentations. Application Software or simply apps can also be referred to as non-essential software as their requirement is highly subjective and their absence does not affect the functioning of the system. All the apps that we see on our mobile phones are also examples of Application Software. There is certain software that is exclusively made for **app development** like Meteor and Flutter. These are examples of Application software too.

There are various types of application software:

- **Word Processors:** These applications for documentation. Along with that it also helps in storing, formatting and printing of these documents. Some examples of word processors are:

- - Abiword
 - Apple iWork- Pages
 - Corel WordPerfect
 - Google Docs
 - MS Word

- **Database Software:** This software is used to create and manage a database. It is also known as the Database Management System or DBMS. They help with the organization of data. Some examples of DBMS are:

- - Clipper
 - dBase
 - FileMaker
 - FoxPro
 - MS Access
 - MySQL

- **Multimedia Software:** It is the software that is able to play, create or record images, audio or video files. They are used for video editing, animation, graphics, and image editing. Some examples of Multimedia Software are:

- - Adobe Photoshop
 - Inkscape
 - Media Monkey
 - Picasa
 - VLC Media Player
 - Windows Media Player
 - Windows Movie Maker

- **Education and Reference Software:** These types of software are specifically designed to facilitate learning on a particular subject. There are various kinds of tutorial software that fall under this category. They are also termed as academic software. Some examples are:

- - Delta Drawing
 - GCompris
 - Jumpstart titles
 - KidPix
 - MindPlay
 - Tux Paint

- **Graphics Software:** As the name suggests, Graphics Software has been devised to work with graphics as it helps the user to edit or make changes in visual data or images. It comprises of picture editors and illustration software. Some examples are:
 - - Adobe Photoshop
 - Autodesk Maya
 - Blender
 - Carrara
 - CorelDRAW
 - GIMP
 - Modo
 - PaintShop Pro
- **Web Browsers:** These applications are used to browse the internet. They help the user in locating and retrieving data across the web. Some examples of web browsers are:
 - - Google Chrome
 - Internet Explorer
 - Microsoft Edge
 - Mozilla Firefox
 - Opera
 - Safari
 - UC Browser

Other than these, all the software that serves a specific purpose fall under the category of Application Software.

However, there exists one more classification of the software. The software can also be classified based on their availability and sharability.

This classification is as given below:

1. Freeware

Freeware software is available without any cost. Any user can download it from the internet and use it without paying any fee. However, freeware does not provide any liberty for modifying the software or charging a fee for its distribution. Examples are:

- Adobe Reader
- Audacity
- ImgBurn
- Recuva

- Skype
- Team Viewer
- Yahoo Messenger

2. Shareware

It is a software that is freely distributed to users on a trial basis. It usually comes with a time limit and when the time limit expires, the user is asked to pay for the continued services. There are various types of shareware like Adware, Donationware, Nagware, Freemium, and Demoware (Crippleware and Trialware). Some examples of shareware are:

- Adobe Acrobat
- Getright
- PHP Debugger
- Winzip

c) Difference between Free and Open Source Software.

Ans -

Freeware	Open Source
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Free redistribution of the software.
<ul style="list-style-type: none"> • The freedom to study how the software works and modify it according to your needs and preferences. 	<ul style="list-style-type: none"> • The source code should be publicly available.

<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The software can be modified and distributed in a different format from the original software.
<ul style="list-style-type: none"> • The freedom to enhance the performance of the software and release your enhancements for the community to benefit—both programmers and non-programmers. You can do this at a cost or at no cost. 	<p>The software should not discriminate against persons or groups.</p>
<p>Unlike open source software and free software, freeware offers minimal freedom to the end user.</p>	<p>The software should not restrict the usage of other software</p>

