Different Types of Software with Examples

- By definition, a Software (also abbreviated as an SW or S/W) is a collection **of data**, **programs, procedures, instructions,** and **documentation** that **perform various predefined tasks on a computer system.**
- They enable users to interact with the computer
- In the field of software engineering and computer science, the software is just **information processed by a computer system and programs.**
- The software includes **libraries, programs, and corresponding non-executable data, such as digital media and online documentation.**
- **Computer hardware** and **software** need each other and **neither one of them can be convincingly used on its own.**
- Without software, computers would be of no use.
    - For instance, without the help of your web browser software, you will not be able to surf the Internet. Similarly, without an operating system, no application can run on your computer.

Today there are abundant high-end technologies and software accessible to us that outline the way we lead our lives and house our continuously changing and increasing needs.

Different Types of Software

Typically, there are two major classifications of software.

- System Software
- Application Software.

I. 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 to provide basic functionalities that are required by the user.**
- In simple words, we can say that system software **is an intermediator or a middle layer between the user and the hardware.**
- 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 Systems
- Device Drivers
- Firmware
- Programming Language Translators
- Utility softwares

Operating Systems

- 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:

- 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 system software

- 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**
- They help **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 are **above the system software and** 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.** Eg,
    - a browser is an application designed specifically for browsing the internet
    - 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 like for an example;
    - **Word Processors**
    - **Database Software**
    - **Multimedia Software**
    - **Graphics Software**
    - **Web Browsers:**

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
- 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 (Cripplewareand Trialware).**

Some examples of shareware are:

- Adobe Acrobat
- Getright
- PHP Debugger
- Winzip

3. Open source

- These kinds of software are available to users with the source code which means that a user **can freely distribute and modify the software and add additional features to the software.**
- Open-Source software can either **be free or chargeable.**

Some examples of open-source software are:

- Apache Web Server
- GNU Compiler Collection
- Moodle
- Mozilla Firefox
- Thunderbird

4. Software

- They are also known **as Closed-source software**.
- These types **of applications are usually paid and have intellectual property rights or patents over the source code.**
- The use of these is very **restricted** and usually, the source code is **preserved and kept as a secret.**