

# Chapter 10

## Application and System Software

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### 10.1 DEFINITION OF COMPUTER DATA

The Latin word "data" is the plural of "datum", and nowadays "data" is most commonly used as a singular word. Data is a collection of raw facts, such as symbols, numbers, and words. Data is measured, collected, reported, and analyzed, sometimes it can be visualized using graphs or images. Data are collected together for reference or analysis. Data can exist in a variety of forms such as numbers or text on pieces of paper, as bits and bytes stored in electronic memory, or as facts stored in a person's mind. Computer Data is represented as quantities, characters, or symbols on which operations are performed by a computer, stored and recorded in files and folders on memory device and transmitted in the form of digital electrical signals.

### 10.2 INFORMATION

Information is well defined collection of data.

Data vs. Information - Data are simply facts or figures, it may understand as a bit of information, but not information itself. When data are processed, interpreted, organized, structured or presented so as to make them meaningful or useful, they are called information. Information provides context for data. Computers typically read data, but it is not necessarily something that a computer actually understands. Through the use of formulas, programming scripts, or software applications, a computer can turn data into information that a human can understand. Below is an example of the same data and information and how they differ.

### **Example of Data**

Ramesh Kumar, 775 Vijay Circle, JUC, RJ342001

### **Example of Information**

Ramesh Kumar

775, Vijay Circle

Jodhpur City, Rajasthan 342001

As you can see in the above example, if you only looked at the data, you may be able to understand some of the text on the line, but it isn't really understandable for any one. That same information, when broken out into readable text and even slightly formatted, becomes much more useful and any one can understand that it contact information for Ramesh Kumar.

## **10.3 COMPUTER INSTRUCTION**

Instruction is collection of information, it is also known as of a direction or order in general words. A computer instruction is set of information given to a computer processor by a computer program. At the lowest level, each instruction is a sequence of 0s and 1s that describes a physical operation the computer is to perform (such as "Add") and, depending on the particular instruction type. At the higher level, each instruction is written in high level language similar to the general purpose English language. The size or length of an instruction varies according to type of computer system. For example: -

a=3;

b=4;

c=a+b;

## **10.4 COMPUTER PROGRAM**

A computer program is a well define set of instructions that performs a specific task, when executed by a computer. Everything a computer does is done by using a computer program. A computer requires programs to function, and typically executes the program's instructions in a central processing unit. A computer program is usually written by a programmer in a computer programming language, such as BASIC, C, or Java. Once it is written, the programmer uses a translator to turn it into a machine language that the computer can understand. There are two well-known translator, Compiler and interpreter.

The translators (either Compilers or Interpreter) transform an entire program from one language to another. Interpreters execute a program sequentially, translating

at each step while compiler can execute an entire program to a machine language. Debugger executes a program piecemeal and monitor various circumstances, enabling the programmer to check whether the operation of the program is correct or not. Some examples of computer programs (As a collection of programs, software):

- A web browser like Mozilla Firefox, internet explorer and Google chrome can be used to view web pages on the Internet.
- An office suite can be used to write documents or spreadsheets.
- Video games are computer programs.

A computer program is stored as a file on the computer's hard drive. When the user runs the program, the file is read by the computer, and the processor reads the data in the file as a list of instructions. Then the computer does what the program tells it to do. There are also bad programs, called malware, written by people who want to do bad things to a computer. Some are spyware, trying to steal information from the computer. Some try to damage the data stored on the hard drive. Some others send users to web sites that offer to sell them things. Some are computer viruses. Computers are supplied with various programs designed primarily to assist the user to run jobs or optimize system performance. This collection of programs, called the operating system, is as important to the operation of a computer system as its hardware.

## **10.5 SOFTWARE: APPLICATION AND SYSTEM SOFTWARE**

Computer can be understood by two main components: hardware and software. Computer hardware performs all the computation and calculation. Software instructs the hardware what to do and how to do. A computer is useless unless it has a number of set of programs (i.e. Software) to enable easy use of the computer hardware. The term "software" was first proposed by Alan Turing. In computer science and software engineering, computer software is collection of computer programs, libraries and related data. Without software a computer will remain just a metal body. Computer hardware and software require each other, they cannot be use separately. Computer software may be categorized into two broad categories, such as application software or system software. Application Software are designed for specific application, such as school management software, library management system, game software etc. Application software is directly use by the user and facilitates user's requirements. To develop application software, the programmer does not need to control the basic circuitry of a computer. Instead the programmer needs instructions that make it easy to input data, produce output, do calculations and store and retrieve information. Programming languages that are suitable for such application programs support these instructions; there are many

languages available for developing application program/software. Examples of an application software include a word processor, a spreadsheet, an accounting application, a web browser, a media player, an aeronautical flight simulator, a console game or a photo editor.

System software/programs are designed to make the computer easier to use, such as operating system, language translator and device driver etc. System software directly operates the computer hardware to provide basic functionality needed by users and other software, and to provide a platform for running application software. To develop system software, the programmer needs instruction to control the computer's circuitry. C and C++ languages are widely used to develop system software. System software can be divided as:

- Operating systems
- Device drivers
- Utilities
- Translators (Compiler and Interpreter)

### **Operating Systems**

Operating system is a type of system software, its main work is to control and manage the computer hardware for example memory, processor and input-output related work. It is a collection of essential softwares that manage resources and provides common services for other software that runs "on top" of them.

### **Device Drivers**

Device driver operates or controls a particular type of device that is attached to a computer. Each device needs at least one corresponding device driver. For connecting a printer to a computer, a printer device driver is required.

### **Utilities**

Utilities are computer programs which are designed to assist users in the maintenance and care of their computers.

### **Translators (Compiler and Interpreter)**

Mainly Programs and Software's are designed in high level languages which are similar to natural languages so programmer can prepare software easily and efficiently. High level languages are converted in machine languages with the help of compiler or Interpreter. Compiler and Interpreter can also tell errors in program so programmer can improve.



## **10.6 USES AND EXAMPLES OF APPLICATION SOFTWARE AND SYSTEM SOFTWARE**

In information technology, an application software is a computer program designed to help people perform an activity. An application software thus differs from an operating system (which runs a computer), it is a utility (which performs maintenance or general-purpose chores), and a programming tool (with which computer programs are created). Depending on the activity for which it was designed, an application software can manipulate text, numbers, graphics, or a combination of these elements. Some application software packages focus on a single task, such as word processing; others, called integrated software include several applications. Application software, or simply applications, are often called productivity programs or end-user programs because they enable the user to complete tasks such as creating documents, spreadsheets, databases, and publications, doing online research, sending email, designing graphics, running businesses, and even playing games. Application software is specific to the task it is designed for and can be as simple as a calculator application or as complex as a word processing application. When you begin creating a document, the word processing software has already set the margins, font style and size, and the line spacing for you. But you can change these settings, and you have many more formatting options available. For example, the word processor application makes it easy to add colour, headings, and pictures or delete, copy, move, and change the document's appearance to suit your needs.

System software programs directly related to the computer hardware and perform tasks associated with controlling and utilizing computer hardware. System software includes device drivers, operating systems, servers, utilities, and window systems. System software is responsible for managing a variety of independent hardware components, so that they can work together harmoniously. System program controls the execution of programs, manage the storage & processing resources of the computer & perform other management & monitoring function.

## **10.7 PROPRIETARY SOFTWARE AND OPEN SOURCE SOFTWARE (OSS)**

### **Proprietary Software**

The term proprietary is derived from the Latin word proprieties meaning property. Proprietary software is a computer software licensed under the exclusive legal rights of the copyright holder. Proprietary software is developed by a person or firm (usually the one that developed it) who has rights of using existing or

developing new tools to create new software. There are almost always major restrictions on its use, and its source code is almost always kept secret. Source code is the form in which a program is originally written by a human using a programming language and prior to being converted to machine code which is directly readable by a computer's CPU (central processing unit). It is necessary to have the source code in order to be able to modify or improve a program. A proprietary software developer sells or provides his creation under some concrete conditions which should be followed in order to avoid any legal issues. In general, these concrete conditions involves usage using software with a purchased license, within the permitted boundaries, no modification allowed, no further re-distributions and no reverse engineering to applied. The main identity of proprietary software is that its source code is always kept secret from outside world. Thus, the internal structure of proprietary software is not exposed. The restrictions on proprietary software are generally imposed through a document called EULA (End-user license agreements) to which users are supposed to agree before using the software. It works just like a contract of usage conditions between the user and vendor. If a user is found indulged in activities leading to the breaking of copyright conditions, the selling authority has the right to impose legal actions against the misusing personal. Some Unix-like operating systems are also proprietary. Among the most popular are AIX (developed by IBM), HP-UX (developed by Hewlett-Packard), QNX (developed by QNX Software Systems) and Solaris (developed by Sun Microsystems).

### **Open Source Software (OSS)**

Software, whose source code is published and made available to the public, enabling anyone to copy, modify and redistribute the source code without paying royalties or fees. Open source code develops through community cooperation. These communities are composed of individual programmers, users as well as very large companies. Some examples of open source initiatives are GNU/Linux, Eclipse, Apache, Mozilla etc.

The licence usually permits users to collaboratively use, change and improve software to redistribute it. Open source software is software whose license guarantees (1) freedom to access and modify its source code, (2) freedom to redistribute and reuse the software, (3) freedom to use the software in any way you want, but also in some circumstances.

## **10.8 FOUNDATION OF THE OPEN SOURCE SOFTWARE**

Why is it called Open Source Software? Open: collaboration is open to all and Source: source code is freely shared. The term "open source" refers to codes

(Programs) that 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 software with source code that anyone can inspect, modify, and enhance. "Source code" is the part of software that most computer users don't ever see; it's the code computer programmers can manipulate to change how a piece of software—a "program" or "application"—works.

Programmers who have access to a computer program's source code can improve that program by adding features to it or fixing parts that don't always work correctly. "Open source" doesn't just mean something is free of charge. Open source software programmers can charge money for the open source software they create or to which they contribute. Open source technology and open source thinking both benefit programmers and non-programmers. Early inventors built much of the Internet itself on open source technologies and anyone using the Internet today benefited from open source software. OSS have powerful implications:

- ☐ Encourage reuse
- ☐ Enable innovation
- ☐ Flexibility
- ☐ Easier integration
- ☐ Drives down price of software to zero
- ☐ No vendor or service monopoly, it means no reason to hide defects and security vulnerabilities
- ☐ No single-vendor means diversity of support and services choice
- ☐ Sustained competition is a customer benefit
- ☐ Lower barriers to entry
- ☐ Widens participation

## **10.9 COMPARISON BETWEEN OSS AND PROPRIETARY SOFTWARE**

Some software has source code that only the person, team, or organization who created it and maintains exclusive control over it can modify. People call this kind of software "proprietary" or "closed source" software. Only the original authors of proprietary software can legally copy, inspect, and alter that software. And in order to use proprietary software, computer users must agree that they will not do anything with the software that the software's authors have not expressly permitted. Microsoft Office and Adobe Photoshop are examples of proprietary software.

While Open source software is different. Its authors make its source code available to others who would like to view that code, copy it, learn from it, alter it, or share it. LibreOffice and the GNU Image Manipulation Program are examples of open source software. As they do with proprietary software, users must accept the terms of a license when they use open source software. The legal terms of open source licenses differ dramatically from those of proprietary licenses. Open source licenses affect the way people can use, study, modify, and distribute software. In general, open source licenses grant computer users permission to use open source software for any purpose they wish.

## **10.10 REASONS FOR ADOPTION OF OPEN SOURCE SOFTWARE**

People prefer open source software to proprietary software for a number of reasons, including:

### **Control**

Many people prefer open source software because they have more control over it. They can examine the code to make sure it's not doing anything they don't want it to do, and they can change parts of it they don't like. Users who aren't programmers also benefit from open source software, because they can use this software for any purpose they wish.

### **Training**

Other people like open source software because it helps them become better programmers. Because open source code is publicly accessible, students can easily study it as they learn to make better software.

### **Security**

Some people prefer open source software because they consider it more secure and stable than proprietary software. Because anyone can view and modify open source software, someone might spot and correct errors or omissions that a program's original authors might have missed. And because so many programmers can work on a piece of open source software without asking for permission from original authors, they can fix, update, and upgrade open source software more quickly than they can proprietary software.

### **Stability**

Many users prefer open source software to proprietary software for important long-term projects. Because programmers publicly distribute the source code for open source software, users relying on that software for critical tasks.

## 10.11 ADVANTAGES AND DISADVANTAGES OF OSS

### Advantages

- The acquisition cost, development and implementation contract costs of OSS are likely to be lower than for proprietary software. So, the most remarkable strength of the OSS is costs saving. Using OSS can save both license and development costs.
- Data transferability; with open source code and a move towards open data formats, there are greater opportunities to share data across interoperable platforms
- Increased opportunities for reuse.
- Another advantage of widely used OSS packages is the generally high quality of the software.
- Potential for fast cycle time of releases and bug fixes.

### Disadvantages

- If the source code is made available to the wider community, it is also vulnerable to threats from the hacker community.
- Support and maintenance costs may outweigh those of the proprietary package. A full assessment of the total cost of ownership along with the proposed supplier will help to mitigate this risk.
- Open source solutions may require additional development to enable integration with an existing proprietary environment.
- Some open source solutions may never work well with established proprietary products.

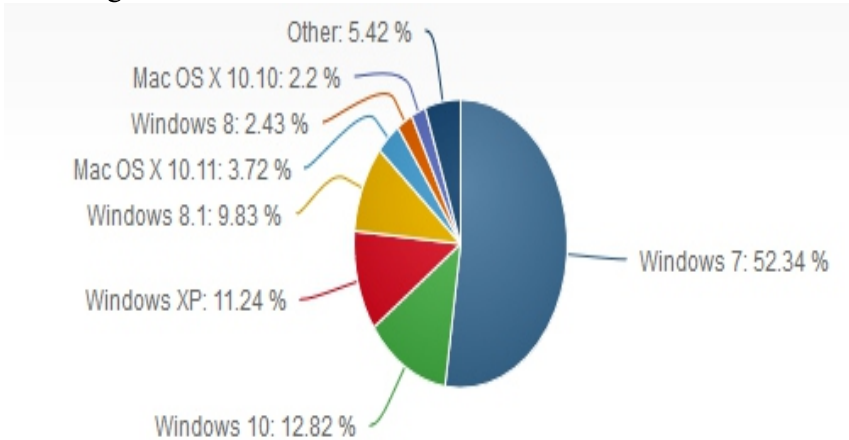
## 10.12 OPERATING SYSTEM: MICROSOFT WINDOW, LINUX, OPEN OFFICE

Operating system is a type of System software its main work is to control and manage the computer hardware for example memory, processor and input-output related work. Which are essential collections of software that manage resources and provides common services for other software that runs "on top" of them.

## 10.13 MICROSOFT WINDOWS OPERATING SYSTEM

Windows is a type of operating systems, which is formally called Microsoft Windows. We look at the history of Microsoft's Windows operating systems (Windows OS) from 1985 to present day. Windows dominates the personal computer world, running, by some estimates, more than 90 % of all personal computers □ the remainder running Linux and Mac-operating systems.

Windows provides a graphical user interface (GUI), virtual memory management and multitasking.



Windows OS Distribution

The detailed history of MS-DOS and Windows operating systems designed for personal computers (PCs):

### **MS-DOS (Microsoft Disk Operating System)**

Originally developed by Microsoft for IBM, MS-DOS was the standard operating system for IBM-compatible personal computers. The initial versions of DOS were very simple and resembled another operating system called CP/M. Subsequent versions have become increasingly sophisticated as they incorporated features of minicomputer operating systems.

### **Windows 1.0 2.0 (1985-1992)**

Introduced in 1985, Microsoft Windows 1.0 was named due to the computing boxes, or "windows" that represented a fundamental aspect of the operating system. Instead of typing MS-DOS commands, windows 1.0 allowed users to point and click to access the windows. In 1987 Microsoft released Windows 2.0, which was designed for the designed for the Intel 286 processor. This version added desktop icons, keyboard shortcuts and improved graphics support.

### **Windows 3.0 3.1 (1990 1994)**

Windows 3.0 was released in May, 1990 offering better icons, performance and advanced graphics with 16 colours designed for Intel 386 processors. Windows 3.0 included Program Manager, File Manager and Print Manager and games. Microsoft released Windows 3.1 in 1992 with advanced graphics.

### **Windows 95 (August 1995)**

Windows 95 was released in 1995 and was a major upgrade to the Windows operating system. This OS was a significant advancement over its precursor Windows 3.1. In addition to sporting a new user interface, Windows 95 also includes a number of important internal improvements. Perhaps most important, it supports 32-bit applications, which means that applications written specifically for this operating system should run much faster. Although Windows 95 can run older Windows and DOS applications, it has essentially removed DOS as the underlying platform. Other important features in this operating system are the ability to automatically detect and configure installed hardware (plug and play).

### **Windows 98 (June 1998)**

Windows 98 offers support for a number of new technologies, including FAT32, AGP, MMX, USB, DVD, and ACPI. Its most visible feature, though, is the Active Desktop, which integrates the Web browser (Internet Explorer) with the operating system.

### **Windows ME - Millennium Edition (September 2000)**

The Windows Millennium Edition, called "Windows Me" was an update to the Windows 98 core and included some features of the Windows 2000 operating system. This version also removed the "boot in DOS" option.

### **Windows NT 31. - 4.0 (1993-1996)**

Windows NT (New Technology) is a 32-bit operating system that supports preemptive multitasking. There are actually two versions of Windows NT: Windows NT Server, designed to act as a server in networks, and Windows NT Workstation for stand-alone or client workstations.

### **Windows 2000 (February 2000)**

Often abbreviated as "W2K," Windows 2000 is an operating system for business desktop and laptop systems to run software applications, connect to Internet and intranet sites, and access files, printers, and network resources. Microsoft released four versions of Windows 2000: Professional (for business desktop and laptop systems), Server (both a Web server and an office server), Advanced Server (for line-of-business applications) and Data centre Server (for high-traffic computer networks).

### **Windows XP (October 2001)**

Windows XP was made with new graphical user interface and a more stable and reliable environment than previous versions of Windows, released in 2001. Windows XP comes in two versions, Home and Professional. Microsoft focused



on mobility for both editions, including plug and play features for connecting to wireless networks. Windows XP is one of Microsoft's best-selling products.

### **Windows Vista (November 2006)**

Windows Vista offered advancement in reliability, security, ease of deployment, performance and manageability over Windows XP. New in this version was capabilities to detect hardware problems before they occur, security features to protect against the latest generation of threats, faster start-up time and low power consumption of the new sleep state. In many cases, Windows Vista is noticeably more responsive than Windows XP on identical hardware.

### **Windows 7 (October 2009)**

Windows 7 was released in conjunction with Windows Server 2008 R2, Windows 7's server counterpart. Enhancements and new features in Windows 7 include multi-touch support, Internet Explorer 8, improved performance and start-up time. It can share digital photos with the help of media file and it can give permission for virtual backup.

### **Windows 8 (August 2012)**

Windows 8 was released on August. 1, 2012 and is a completely redesigned operating system that's been developed from the ground up with touchscreen use in mind as well as near-instant-on capabilities that enable a Windows 8 PC to load and start up in a matter of seconds rather than in minutes.

### **Windows 10**

Before Windows 10 releasing in 2014 its beta version is released. Microsoft claims Windows 10 features fast start up and resume, built-in security and the return of the Start Menu in an expanded form. For example, Tablet, PC., Smartphone can also update Windows 10.

### **Microsoft Operating Systems for Servers and Mobile Devices**

Aside from operating systems designed for use on personal computers (PCs) and laptops, Microsoft has also developed operating systems for services, hand-held devices, and mobile phones.

### **Windows Server (March 2003)**

Windows Server is a series of Microsoft server operating systems. Windows servers are more powerful versions of their desktop operating system counterparts and are designed to more efficiently handle corporate networking, Internet/intranet hosting, databases, enterprise-scale messaging and similar functions.



### **Windows Home Server (January 2007)**

Announced in January 2007, Windows Home Server (WHS) is a "consumer server" designed to use with multiple computers connected in the home. Home Server allows you to share files such as digital photos and media files, and also allows you to automatically backup your home networked computers.

### **Windows CE (November 2006)**

A version of the Windows operating system designed for small devices such as personal digital assistants (PDAs) (or Handheld PCs in the Microsoft vernacular). The Windows CE graphical user interface (GUI) is very similar to Windows 95 so devices running Windows CE should be easy to operate for anyone familiar with Windows 95.

### **Windows Mobile (April 2000)**

A mobile operating system for smartphones and mobile devices from Microsoft based on the Windows CE kernel and designed to look and operate similar to desktop versions of Microsoft Windows.

## **10.14 LINUX**

Just like Windows XP, Windows 7, Windows 8, and Mac OS X, Linux is an operating system. An operating system is software that manages all of the hardware resources associated with your desktop or laptop. To put it simply □ the operating system manages the communication between your software and your hardware. Without the operating system the software wouldn't function. Linux is a different type of operating system which have security function means this operating system is secure from Virus so for commercial purpose Linux based system used. Linux is a free open-source operating system based on Unix. Linux is:

- Free
- Unix Like
- Open Source
- Network operating system

Linux is a kernel. A kernel provides access to the computer hardware and control access to resources such as:

- Files and data.
- Running programs.
- Loading programs into memory.
- Networks.
- Security and firewall

□ Other resources etc.

### **A Brief History of Linux**

In 1991 Linus Torvalds was studying UNIX at a university, where he was using a special educational experimental purpose operating system called Minix (a small version of UNIX to be used in the academic environment). However, Minix had its limitations and Linus felt he could create something better. Therefore, he developed his own version of Minix, known as Linux. Linux was Open Source right from the start.

Linux is a kernel developed by Linus. The kernel was bundled with system utilities and libraries from the GNU project to create a usable operating system. Sometimes people refer to Linux as GNU/Linux because it has system utilities and libraries from the GNU project. Linus Torvalds is credited for creating the Linux Kernel, not the entire Linux operating system.

### **Difference between Unix and Linux**

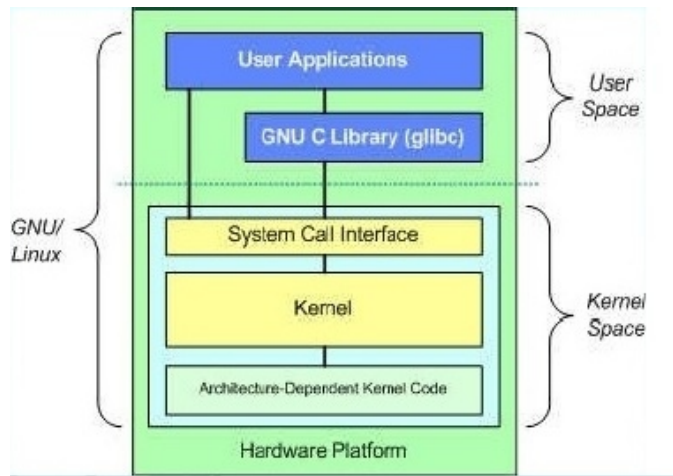
Linux is an open source, free to use operating system widely used for computer hardware and software, game development, tablet PCS, mainframes etc. Unix is an operating system commonly used in internet and PCs by Solaris, Intel, HP etc. Unix, which is an operating system developed in the 1970s at Bell Labs by Ken Thompson, Dennis Ritchie's. Unix and Linux are similar in many ways, and in fact, Linux was originally created to be similar to Unix. Both have similar tools for interfacing with the systems, programming tools, files system layouts, and other key components. However, Unix is not free. Over the years, a number of different operating systems have been created that attempted to be □ Unix-like □ or □ Unix-compatible, □ but Linux has been the most successful, far surpassing its predecessors in popularity.

### **Components Of Linux System**

Linux Operating System has primarily three components

#### **Kernel**

Kernel is the core part of Linux. It is responsible for all major activities of this operating system. It consists of various modules and it interacts directly with the underlying hardware. Kernel provides there quire abstraction to hide low level hardware details to system or application programs.



### System Library

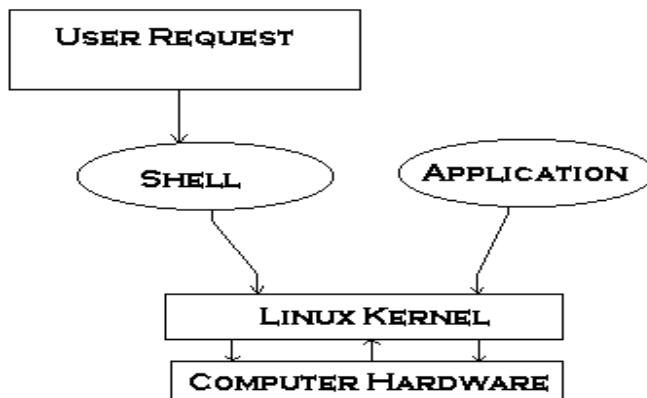
System libraries are special functions or programs using which application programs or system utilities access Kernel's features.

### System Utility

System Utility programs are responsible to do specialized, individual level task.

### Kernel Mode

Kernel component code executes in a special privileged mode called kernel mode with full access to all resources of the computer. This code represents a single process, executes in single address space and do not require any context switch and hence is very efficient and fast.



## Linux System Architecture

Linux System Architecture is consists of following layers:

### Hardware layer

Hardware consists of all peripheral devices (RAM/ HDD/ CPU etc).

### Kernel

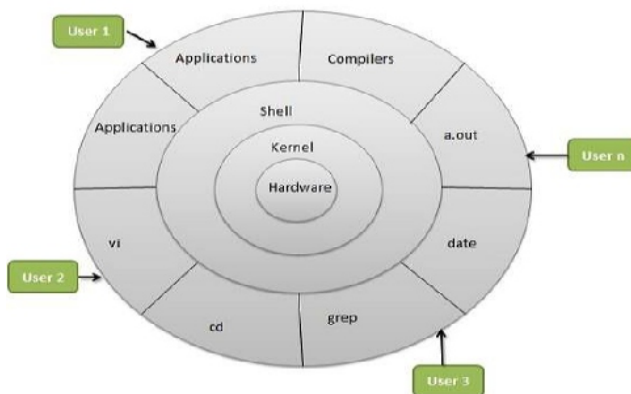
Core component of Operating System, interacts directly with hardware.

### Shell

An interface to kernel, hiding complexity of kernel's functions from users. Takes commands from user and executes kernel's functions.

### Utilities

Utility programs giving user most of the functionalities of an operating systems.



## Basic Features of Linux Operating System

Following are some of the important features of Linux Operating System.

### Portable

Portability means software can work on different types of hardware in same way. Linux kernel and application program supports their installation on any kind of hardware platform.

### Open Source

Linux source code is freely available and it is community based development project. Multiple teams work in collaboration to enhance the capability of Linux operating system and it is continuously evolving.

### **Multi-User**

Linux is a multiuser system means multiple users can access system resources like memory/ ram/ application programs at same time.

### **Multiprogramming**

Linux is a multiprogramming system means multiple applications can run at same time.

### **Hierarchical File System**

Linux provides a standard file structure in which system files/ user files are arranged.

### **Shell**

Linux provides a special interpreter program which can be used to execute commands of the operating system.

### **Security**

Linux provides user security using authentication features like password protection/controlled access to specific files/ encryption of data.

## **10.15 OPEN OFFICE**

OpenOffice.org (OOo), commonly known as OpenOffice, is an open-source office suite. It is an open-sourced version of the earlier Star Office, which Sun Microsystems acquired in 1999 for internal use. Sun open-sourced the software in July 2000 as a competitor to Microsoft Office, releasing version 1.0 on 1 May 2002. Apache OpenOffice is the leading open-source office software suite for word processing, spreadsheets, presentations, graphics, databases and more. It is available in many languages and works on all common computers.

### **Important points:**

- Software - A program consists of the step by step instruction that tell the computer how to do its work.
- Software is often divided into two types: Application software and system software.
- Example of application software are word processor, spreadsheet, database and presentation software etc.
- Example of system software are Operating system, Language translator and Utility software.
- Proprietary software is software that is owned by an individual or a company.

- ☐ Open source software is generally free software that you can use in your business.
- ☐ Operating system provides interface between software and hardware.
- ☐ Microsoft windows is the most popular operating system.
- ☐ Microsoft windows mainly used for personal computer and provides graphical user interface.
- ☐ Linux is free open source operating system based on Unix.
- ☐ Open office is an open source office suite.

### Practice Question

#### Multi choice question

- Q. 1.** Software that allows your computer to interact with the user, applications, and hardware is called
- A. application software
  - B. system software
  - C. word processor
  - D. database software
- Q. 2.** In order for a computer to understand a program, it must be converted into machine language by a(n)\_\_\_\_.
- A. operating system
  - B. device driver
  - C. utility
  - D. language translator
- Q. 3.** ☐GUI☐ stands for
- A. gruella universal interface
  - B. graphical user interface
  - C. graphic uninstall/ install
  - D. general utility interface
- Q. 4.** \_\_\_\_\_ is the most widely used operating system.
- A. Windows
  - B. UNIX
  - C. Mac OS
  - D. Linux
- Q. 5.** This operating system is most popular with graphic designers and those who work in multimedia.

- A. Windows Vista
- B. Mac OS
- C. Linux
- D. UNIX

**Q. 6.** Which of the following is system software?

- A. Operating system
- B. Compiler
- C. Utilities
- D. All of the above

**Q. 7.** The list of coded instructions is called

- A. Computer Program
- B. Algorithm
- C. Flowchart
- D. Utility Program

**Q. 8.** Source code is available to view, modify and redistribute in

- A. Open Source
- B. Closed Source
- C. Proprietary
- D. Licensed

**Q. 9.** This operating system was originally designed to run on minicomputers used in a network environment.

- A. Linux
- B. Windows
- C. UNIX
- D. Mac OS

### **Very short type questions**

- Q. 1.** What is computer data?
- Q. 2.** Write definition of software.
- Q. 3.** Write examples of application software.
- Q. 4.** Write examples of system software.
- Q. 5.** Write definition of system software.
- Q. 6.** Write definition of operating system.
- Q. 7.** What is open source software?
- Q. 8.** What is proprietary software?
- Q. 9.** What is Linux operating system?
- Q. 10.** Write example of operating system.

### **Short type question**

- Q. 1. Explain system software with example.
- Q. 2. Explain any example of application software.
- Q. 3. Explain difference between proprietary software and open source software.
- Q. 4. Explain foundation of open source software.
- Q. 5. Write any two advantages and disadvantages of Open source software.
- Q. 6. Explain any two version of Microsoft windows operating system.
- Q. 7. What is kernel mode in Linux OS?
- Q. 8. Write features of Linux operating system.

### **Essay type questions-**

- Q. 1. Explain uses and example of system software.
- Q. 2. Explain Proprietary software in detail.
- Q. 3. Explain reasons for adoption of open source software.
- Q. 4. Explain Microsoft Windows operating system for PCs.
- Q. 5. Explain component of Linux System.
- Q. 6. What is function of Linux Kernel?
- Q. 7. What is open office in detail?

### **Answer key for objective questions-**

- 1. B
- 2. D
- 3. B
- 4. A
- 5. C
- 6. D
- 7. A
- 8. A
- 9. A