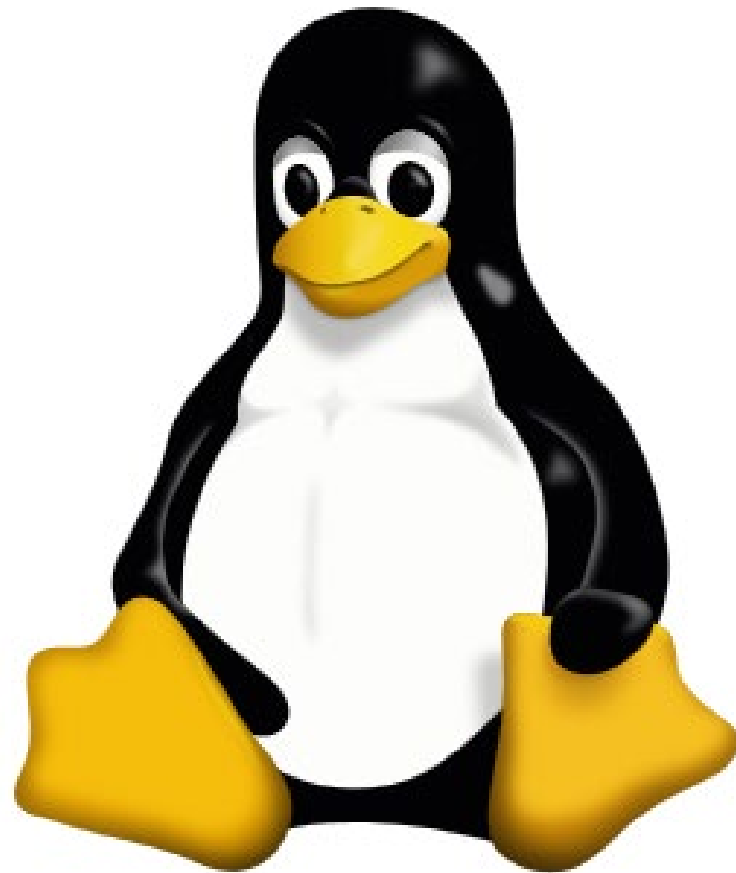# Ubuntu Fundamentals

Introduction to Linux

Learning Objectives

By the end of this lesson, you will be able to:

⦿ Explain Linux

⦿ Differentiate between Linux, Windows, and Unix

⦿ Explain the concept of open source

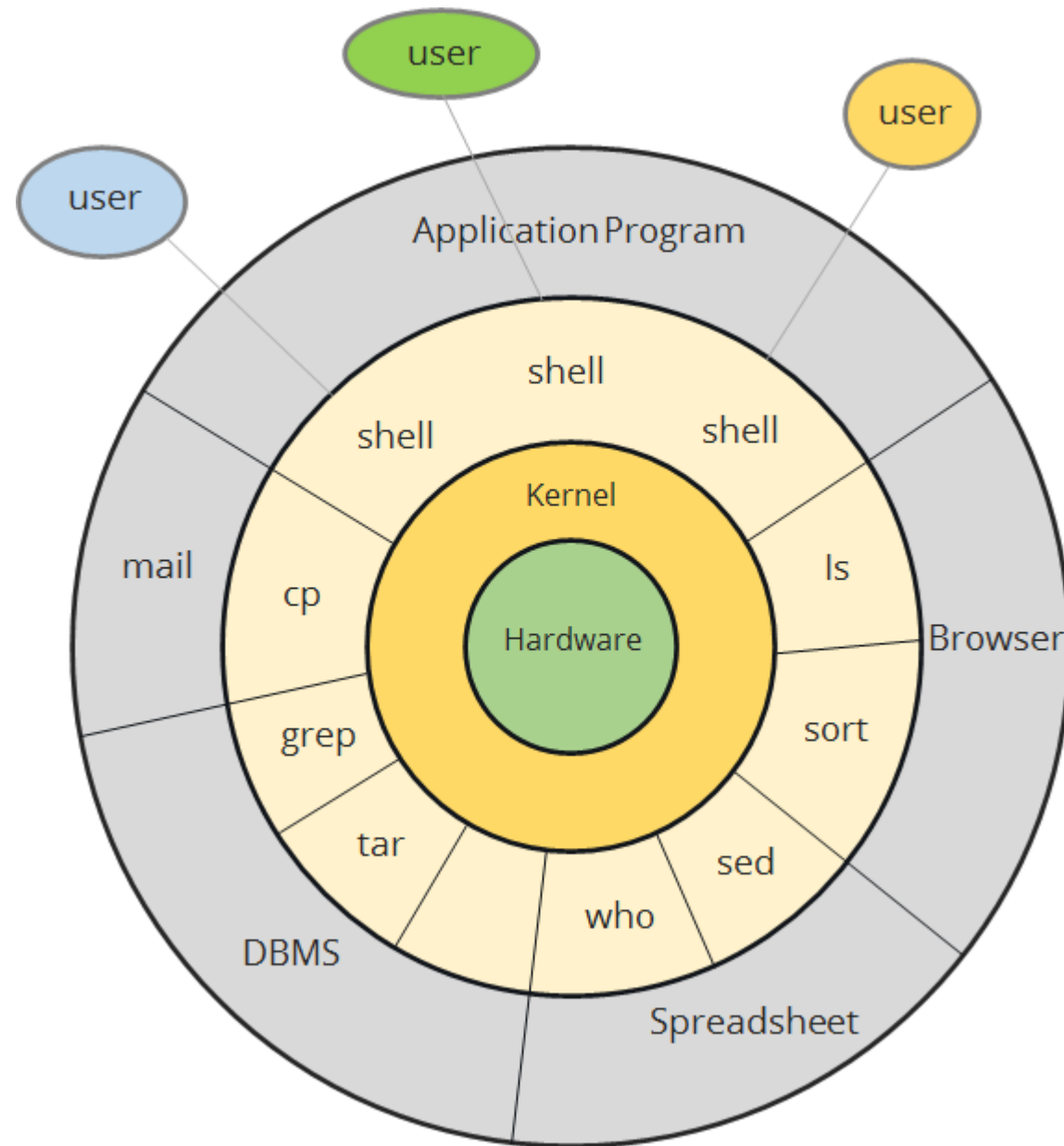⦿ Illustrate why there are different Linux distributions

Linux

- Linux is an open-source operating system based on the Linux kernel.

- Linux was developed by Linus Torvalds, specifically for Intel platforms.
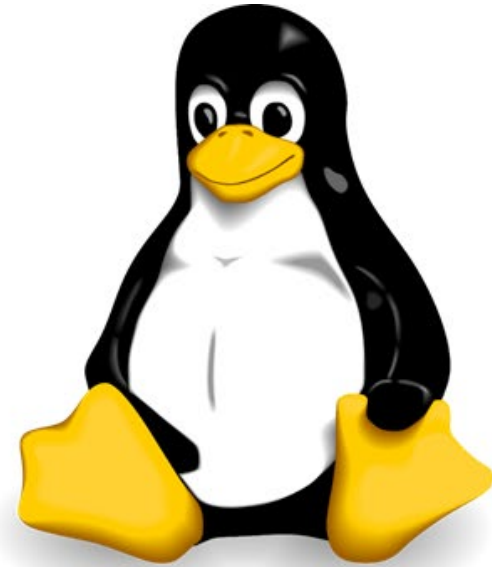
simplilearn

OS Architecture

- The hardware essentially consists of a CPU, like Intel or AMD, along with a RAM and a hard disk with supporting electronic chips known as chip sets.

- The core component of an OS is known as kernel.

- There is a shell layer that acts as an interface between the kernel and users. This is the operating system.

- You can use the applications that perform specific tasks on the shell layer.
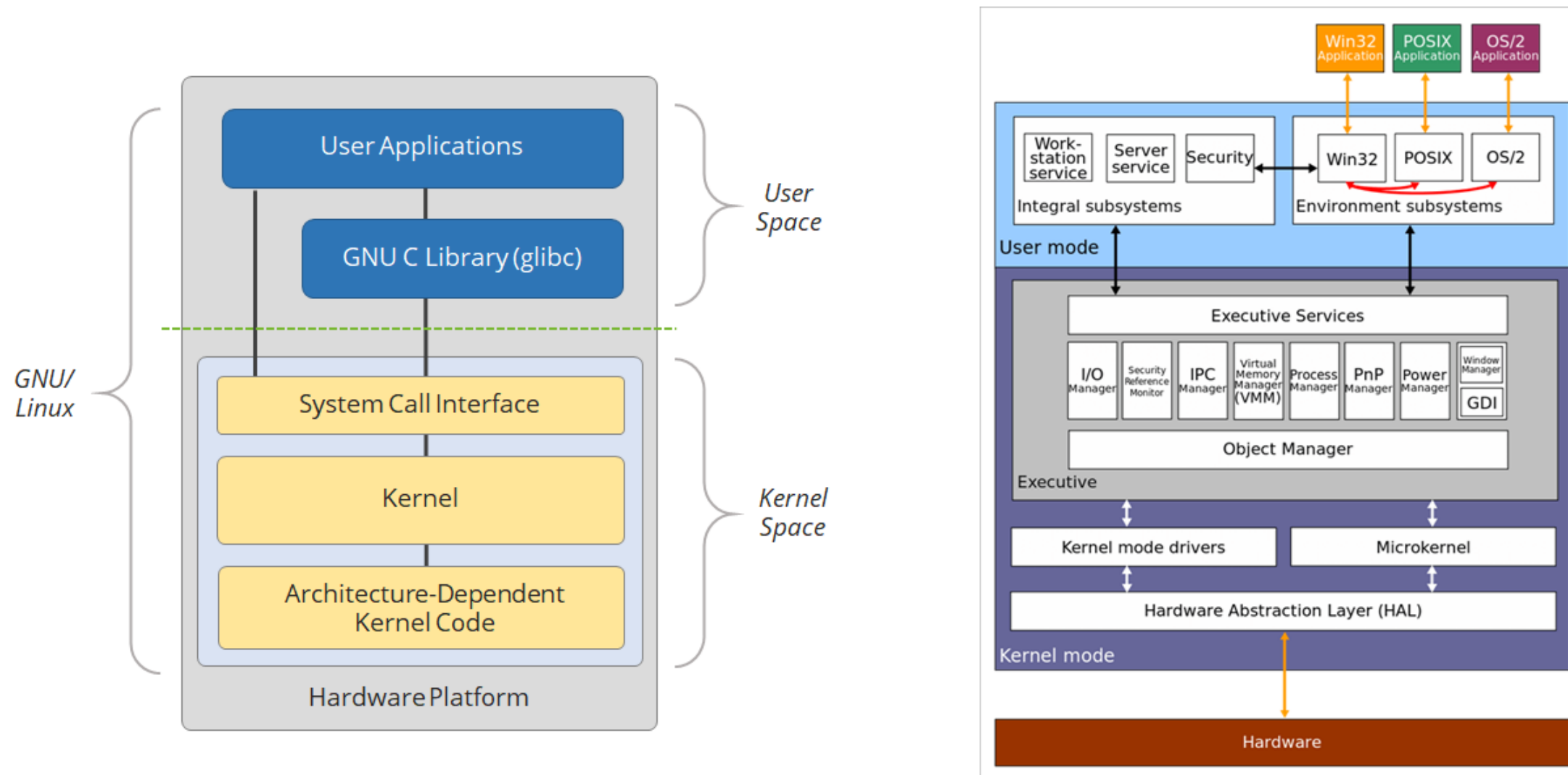
Linux vs. Windows

- Linux is an open-source OS and there are no license charges, whereas Windows is owned by Microsoft Inc. Therefore, it is a proprietary OS.

- Linux uses traditional Unix permissions and POSIX ACL (Access Control List) for file access, whereas Windows uses ACL.

Linux vs. Windows

- Windows differs from Linux in terms of the architecture. Linux has a monolithic kernel, whereas Windows has a microkernel.

- To launch applications, Linux uses virtual memory, whereas Windows uses the physical memory.

- In Linux, the desktop must be installed as an application, whereas in Windows it is part of the kernel.

Linux vs. Windows

Linux is customizable as it is an open-source operating system, unlike Windows.

Linux is more secure when compared to Windows.

Linux boots from any partition, whereas Windows will boot from the primary partition when you use the MBR partition scheme.
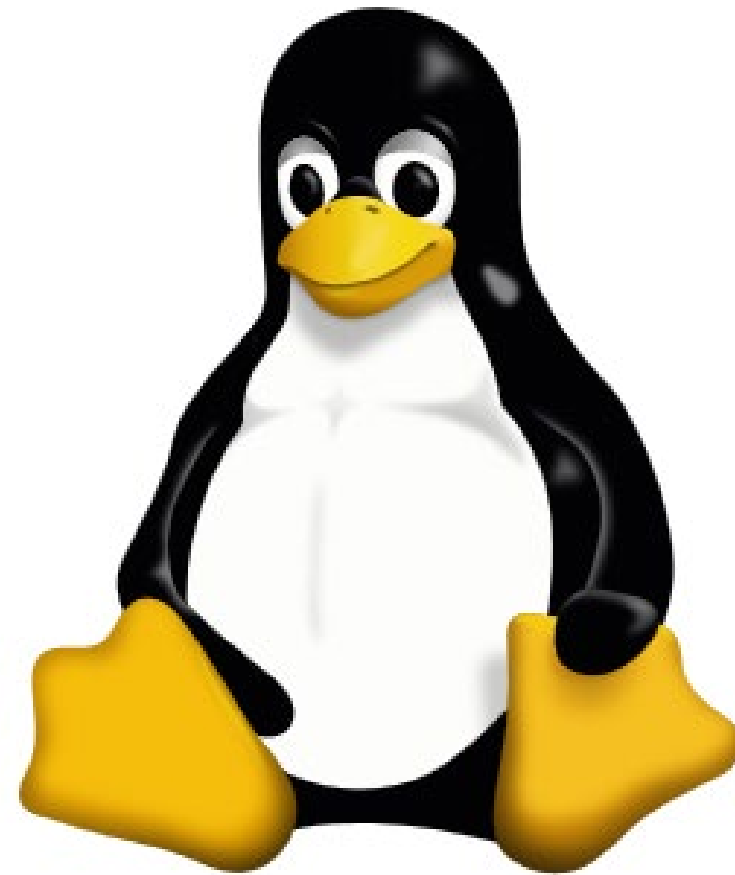
Linux is case sensitive, whereas Windows is not case sensitive.
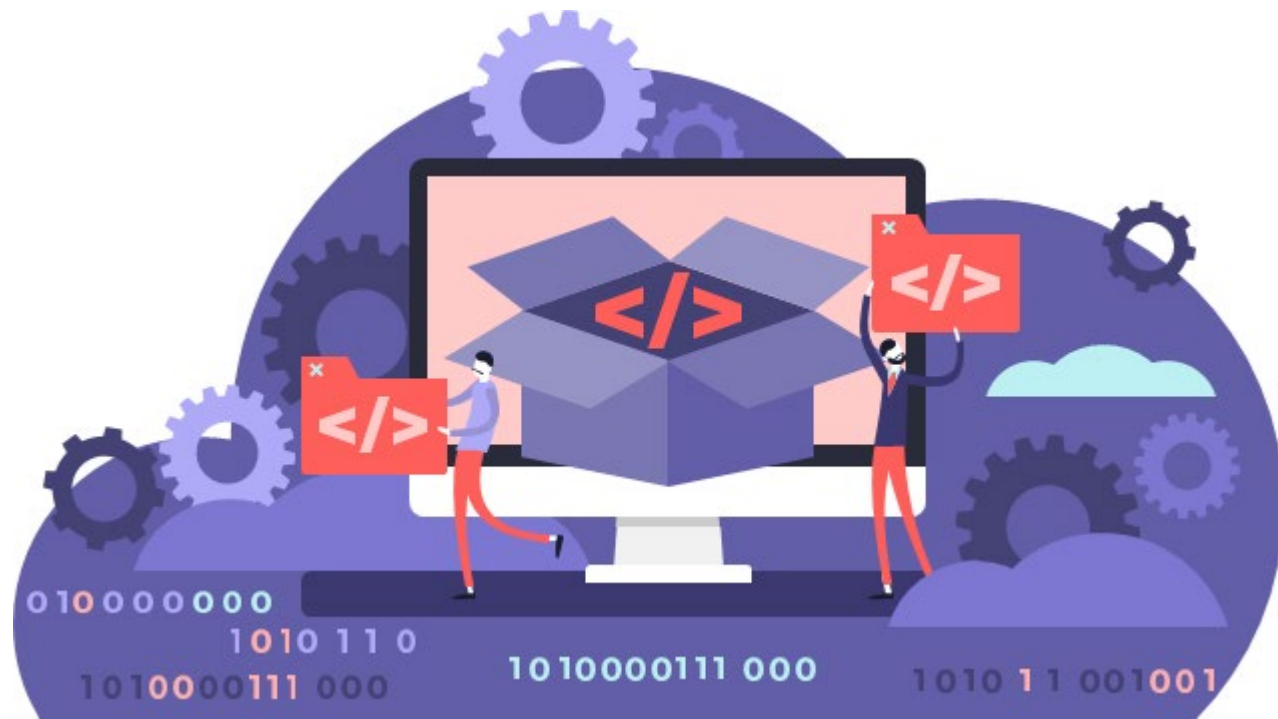
Linux vs. UNIX

Linux is developed by Linus Torvalds and a community effort which has its own standard called Linux Standard Base (LSB).

UNIX follows the POSIX standard.

Open Source

- When the source code of a software is shared with the public for free, it is referred to as open source.

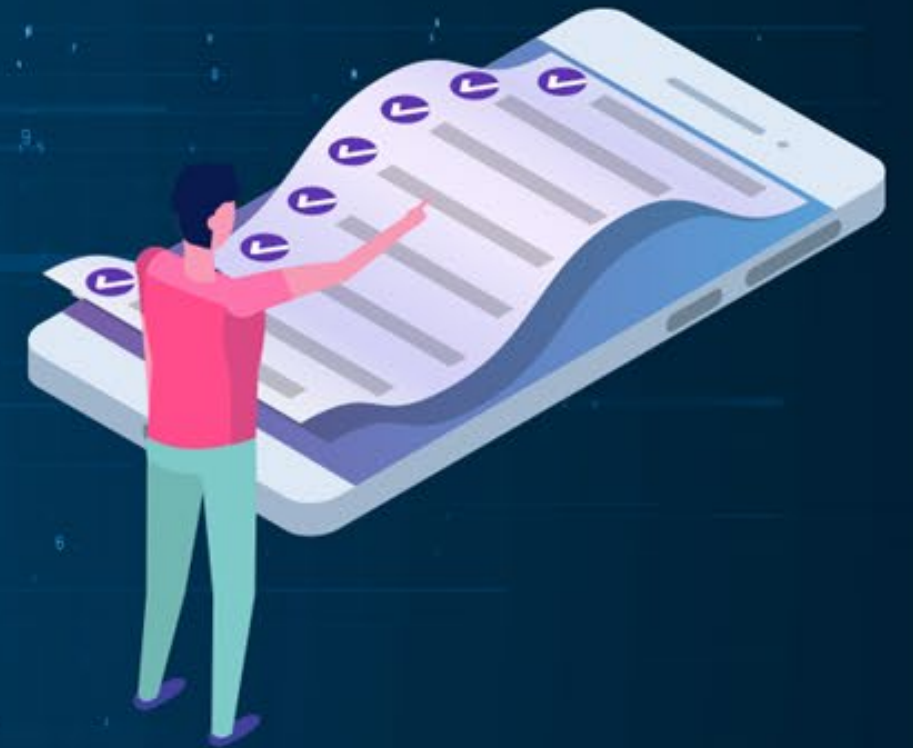- Open-source software is developed by the developer's community and shared voluntarily with the public.

Multiple Distributions of Linux

- Linux is a kernel and is like an engine for a car, and the car is the OS.

- In the automobile industry, different brands use the same engine. In a similar way, multiple distributions of Linux use the same kernel.

Key Takeaways

- Linux is an open-source operating system based on the Linux kernel.

- Open-source software is free for the general public.

- Windows and Linux are both operating systems with different architectures.

Knowledge Check

What is the main reason to choose Linux operating system?

A.   No license costs required and is open source

B.   Ideological preferences of the system administrator

C.   Availability of mandatory applications and tools.

D.   Skills of the administrators and staff

Knowledge Check

1

What is the main reason to choose Linux operating system?

A.   No license costs required and is open source

B.   Ideological preferences of the system administrator

C.   Availability of mandatory applications and tools.

D.   Skills of the administrators and staff

The correct answers is   **A**

Linux is mainly selected because it is free and open source.

Which of the following is a Linux flavor?

A. Ubuntu

B. Solaris

C. AIX

D. HP/Unix

Knowledge Check 2

Which of the following is a Linux flavor?

A.   Ubuntu

B.   Solaris

C.   AIX

D.   HP/Unix

The correct answer is **A**

Except Ubuntu, all the remaining options are not open-source operating systems.

Knowledge Check

3

What is a software that can be freely accessed and modified called?

A.   Synchronous software

B.   Package software

C.   Open-source software

D.   Middleware

What is a software that can be freely accessed and modified called?

A.   Synchronous software

B.   Package software

C.   Open-source software

D.   Middleware

The correct answer is   C

A software that can be freely downloaded, accessed, and modified is called open-source software.