1.3.2 Windows Operating System Facts

An *operating system* is a set of programs that acts as an interface between the applications that are running on a computer and the computer's hardware. Operating systems perform actions such as:

- Receiving user input from input hardware devices such as the keyboard or mouse
- Sending user output to output hardware devices such as the monitor or a printer
- Controlling the use of processing devices by applications
- Serving as a platform for applications
- Moderating hardware
- Providing security
- Managing the file system

Some operating systems also have attributes such as the following:

- *Multiprocessing* is the ability to use multiple processing devices.
- *Multitasking* is the ability to run multiple applications simultaneously. Two common variations are:
  - Cooperative multitasking means that multiple processes must work together for the operating system to work effectively.
  - Preemptive multitasking forces applications to share the CPU.
- *Multithreading* is the ability to run multiple parts of an application simultaneously.

The following table explains important operating system components.

Part	Description
Kernel	The *kernel* is the core of the operating system that is loaded into memory when the system boots up. It is responsible for controlling security, managing the file system, and providing a platform for applications to run on. The user rarely interacts directly with the kernel.
Driver	A *driver* is a type of computer program that enables the operating system to interact with hardware devices.
Interface	An *interface* is what allows the user to interact with the kernel and the utilities. There are two main types of interfaces, command line and GUI. In command line interfaces, commands are executed through instructions written into a command line. Examples of command line-based interfaces are MS-DOS and aspects of Linux. In a Graphical User Interface (GUI), the user executes commands by clicking on graphics and symbols. Windows is an example of graphical user interface.
Utilities	*Utilities* are the features or programs included with an operating system that perform system-related tasks. Common Windows utilities are Control Panel and This PC. Common Linux utilities are cd, cp, grep, and ls.
Application	An *application* is a subclass computer program that is designed for end users. Examples are database, spreadsheet, and word processing programs. Applications frequently come in suites.

In this course, you will learn about the following operating systems:

- Windows 7
- Windows 8.*x*
- Windows 10
- Linux
- Mac