**Week 1-PART 1: Case Projects Ch.1, 2, and 3**

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**Case Project 1-1: Basic operating system functions**

One of the primary responsibilities of an operating system is to handle the input from users’ hardware devices and the output from programs running on the computer. The operating system requires device drivers, programs used to bridge the communication gap between one piece of hardware and the software that uses it, in order to operate hardware components such as a mouse, keyboard, or monitor. These device drivers are often found preinstalled within most modern operating systems today, however legacy operating systems will need to have them installed manually.

Underlying the operating system is the BIOS (basic input output system). This small program exists in the CMOS (complementary metal oxide semiconductor), a separate chip installed directly to the motherboard that is powered by an independent battery. A few of the primary responsibilities of the BIOS is the check that all necessary hardware, such as RAM (random access memory), is functioning properly during its power-on self-test and later to load the operating system.

**Case Project 2-3: New computer for the Marketing Department**

The marketing department currently uses Mac OS X version 10.7 Lion on their computers, but the question fails to mention the hardware in which it is installed, so we must make a lot of assumptions when deciding which operating system is compatible with their equipment. Assuming their machines only meet the minimum requirements to run Lion, and are likely running 32-bit applications, the highest upgrade available would be Mac OS X 10.12 Sierra. Released in September 2016, Sierra is the latest version of the Macintosh operating system maintained and distributed by Apple Inc that is backwards compatible with the Mac OS X 10.7.5 release. There are other hardware considerations when upgrading from Lion to Sierra, including eight gigabytes of necessary hard drive space, two gigabytes of RAM, as well as the peripheral hardware components such as Bluetooth to fully leverage all the functionality of the newer version of the operating system.

**Challenge Lab 3-1 Work with Task Manager in Windows**

To open the Task Manager, you can find it in the list of applications on your Windows operating system, or simply press CTRL+SHFT+ESC. Organizing columns by ascending or descending can be done by clicking the column header and will organize the processes running on your machine in that order. Adding columns to the Details tab can be done by right-clicking on the column headers under the Details tab, selecting Select Columns, and checking or unchecking any category you’d like to see details of. When my machine is idle, the most CPU intensive process is often Firefox, as I frequently have many tabs open.

**References**

(2018, June 6). *macOS Sierra - Technical specifications*. Apple Inc. <https://support.apple.com/kb/SP742?locale=en_US>

Tomsho, G. (2017). *Guide to Operating Systems, 5th edition*. Boston MA: Cengage Learning.