CS 314 Operating Systems
Spring 2024
Quiz #10 on April 11, 2024 (SOLUTIONS)

Your Last Three Digits: _____

(please do NOT write all of your student ID or your name)

Grade: _____

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(1) What does "MBR" stand for? What does MBR contain?

- MBR stands for "Master Boot Record"

- MBR consists of "the boot-strap loader" and "the partition table".

(2) The master boot record consists of the boot-strap loader (program codes) and the partition table. Which one can be "repaired" if it is damaged (not physically "damaged")? Why is it possible to be "repaired (when it is damaged)?

It is only the boot-strap loader that can be "repaired".

The boo-strap loader can be fixed by simply overwriting a corrupt boot-strap loader. It is possible because the boot-strap loader is a common program (the same program for any host computer (those that have the same hardware architecture (Mac, Windows-PC (a.k.a. IBM compatible), and etc.)). You can download a copy of an intact boot-strap loader from a vendor.

(3) Why are "boot sector viruses" are fatal to systems?

Boot-sector viruses are fatal since they (boot-sector viruses infect the boot-strap loader in the MBR) are executed before an operating system starts. It means that those boot-sector viruses can disable all security features in an operating systems, as well as anti-virus software which run on top of the operating system.

(4) What is "partition table" of a disk drive? What information does the partition table contain? What will happen if the partition table fails (corrupt)?
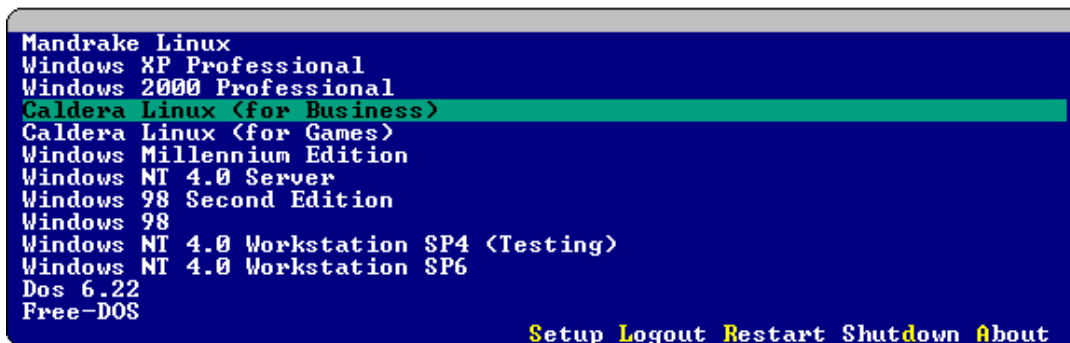
The partition table is a dataset that contains information for each partition that exists in a physical drive.

Partition tables contain information to describe/define each partition, such as:

- the location of each partition in a physical hard drive (where in the hard drive a partition starts, and ends
- which file system is used to format the partition
- a flag (YES/NO) to represent if a bootable operating system is installed in the partition.

(5) The following is a snapshot of "multi-boot" disk utility tool. Where should "multi-boot tool" be installed?

(a) BIOS ROM
(b) The boot-strap loader in MBR
(c) The partition table in MBR
(d) IPL (the OS loader)
(e) The target OS
(f) Somewhere not in the above


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Mandrake Linux
Windows XP Professional
Windows 2000 Professional
Caldera Linux (for Business)
Caldera Linux (for Games)
Windows Millennium Edition
Windows NT 4.0 Server
Windows 98 Second Edition
Windows 98
Windows NT 4.0 Workstation SP4 (Testing)
Windows NT 4.0 Workstation SP6
Dos 6.22
Free-DOS
                          Setup Logout Restart Shutdown About
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Solution: (b)

- It can not be (a) - Nothing can be "installed" to a BIOS ROM

- IPL is "too late" – if an IPL is started, a particular operating system starts loading (you can not see a list of different operating systems).

- Can not be (c) - it is not a "table" (but it is a program)