**Week-1**

**Friday Lecture: 09/04/2020**

**We will cover all of this during the lecture.  Keep these questions in mind before the lecture so that you can recognize and be able to answer them**.

1. What is the Linux Operating System?

I did not find a direct definition of Linux. Thought the website linux.com, I find a simple definition, that is, the operating system manages the communication between your software and your hardware. Without the operating system (OS), the software wouldn’t function. Our textbook also shows its main components and functions: The Linux kernel is the core of the system, controlling how memory, programs, and hardware all interact with one another. The GNU utilities are also an important piece in the Linux system. The Linux shell, which is the main focus of this book, is part of the GNU core utilities. The final piece of a Linux system is the Linux desktop environment.

1. Name at least 3 major parts of what makes up the Operating System?

The Linux kernel, The GNU utilities, A graphical desktop environment, and Application software.

1. The Kernel is the heart of the Linux Operating System.  How can you tell what version of the kernel you are running?

Open a terminal and type in the following command: uname -a. The first number is kernel version.

e.g. The output of the command should like this: 

kernel version is 3

1. What are the parts of the Kernel and what do they do?

The kernel is primarily responsible for four main functions: System memory management (which manages the physical memory available on the server, creates and manages virtual memory, or memory that does not actually exist), Software program management (which controls how the Linux system manages all the processes running on the system) Hardware management (which passes data back and forth to the device, acting as a middle man between applications and the hardware) Filesystem management (which supports different types of filesystems to read and write data to and from hard drives)

1. What is a Process?

The Linux operating system calls a running program a process. A process can run in the foreground, displaying output on a display, or it can run in the background, behind the scenes. The kernel controls how the Linux system manages all the processes running on the system.

1. What does running in the foreground and running in the background means?

It’s used to describe a running program which is called a process that can run in the foreground, displaying output on a display, or it can run in the background, behind the scenes. The kernel controls how the Linux system manages all the processes running on the system.

1. What is the name of the first process that the Linux system creates?

The first process is called the init process.

1. Kernel communicate with devices through Drivers (True or False) \_ T\_.
2. There is no need to rebuild the kernel when you install new devices because Modules allow you to insert and remove Driver code in the Live Kernel. (True or False), \_\_ T\_.
3. All devices in Linux are identified by the kernel as Files. The types of files are Character, Block and Network. (True or False) \_ T \_.
4. Describe what a character device is and give one example.

Character devices are devices that can only handle data one character at a time. For example: modems and terminals.

1. Block devices handles data blocks at a time--example are Disk Drives--(True or false) T
2. Which kind of file type will be used to send packets?

The network file types are used for devices that use packets to send and receive data.

1. What is the name of the special device files created by Linux for all devices on the system and makes use of a Major number and a Minor Number? (Nodes)

Linux creates special files, called nodes, for each device on the system.

1. What is a File System?

I did not find a direct definition of a File System. Thought the website recmint.com, I find a simply definition, that is, a file system is the way in which files are named, stored, retrieved as well as updated on a storage disk or partition; the way files are organized on the disk.

1. List at least 3 Linux file system types?

e.g. ext, ext2, ext3

1. What is GNU? Who started the concept?

GNU was launched by Richard Stallman (rms) in 1983, as an operating system which would be put together by people working together for the freedom of all software users to control their computing.

1. Describe the purpose of the SHELL

The purpose of the SHELL is to provide a way for users to start programs, manage files on the filesystem, and manage processes running on the Linux system. The core of the shell is the command prompt.

1. What piece of software works directly with your Video card and Monitor in the PC when it comes to presenting graphics?

The X Window software which works directly with your Video card and Monitor in the PC is the core element in presenting graphics.

1. List at least 2 Desktops for Linux.

The X Window System, The KDE Desktop

1. What do you call a complete Linux system package?

A complete Linux system package is called a distribution.

1. **What is a Live CD and name at least 3 live Distros.  ( Allows you to boot your PC and run Linux w/o installing anything on the hard drive.) [ PCLinuxOS, Knoppix,** **Ubuntu, Puppy)**

A bootable CD that contains a sample Linux system called a Linux Live CD. 3 live Distros: Knoppix, PCLinuxOS, Ubuntu

1. What is a Console?

A Console is a physical terminal where system administrators, pro-grammers, and system users can sit to enter shell commands or view text output.

One way to get to a CLI is to take the Linux system out of graphical desktop mode and place it in text mode. This provides nothing more than a simple shell CLI on the monitor, just like the days before graphical desktops. This mode is called the Linux console.

1. When Linux starts, it creates many virtual consoles. (True or False)\_\_ T\_\_.
2. CLI (command line interface) was the only means of accessing Linux before the Graphical User Interfaces were developed. (True or False) \_T\_\_.
3. How to access the virtual console: CTRL + ALT + { F1 to F7 } Depending on the virtual console you want to use. T
4. What two things must every user have to log onto a Linux system’?

Log into a console terminal by entering your user ID after the “login:” prompt and typing your password after the “Password:" prompt.

1. How do you see what shell you are in?

See what shell was setup in your systems account(/etc/passwd) file for you.

           $ echo $SHELL

1. Linux is an operating system and has a hierarchical file system that begins with the root directory '/'.  All files and directories are created relative to the '/' directory( True or False)? False
2. How do you switch user from one user to another?

To change to a different user type "su -" followed by a space and the target user's username.