1. What is Linux?

Linux is the kernel developed by Linus Torvalds. It is the main component of Linux operating system and is the core interface between a computer’s hardware and its processes.

1. What is the difference between Linux and Unix?

The main differences between Linux and UNIX are as follows:

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Linux** | **Unix** |

|  |  |  |
| --- | --- | --- |
| Price | Both free distributions and paid distributions are available. | Different levels of UNIX have a different cost structure |
| Target User | Everyone (Home user, Developer, etc.) | Mainly Internet Server, Workstations, Mainframes. |
| File System Support | Ext2, Ext3, Ext4, Jfs, ReiserFS, Xfs, Btrfs, FAT, FAT32, NTFS. | jfs, gpfs, hfs, hfs+, ufs, xfs, zfs,vxfs. |
| GUI | KDE and Gnome | Common Desktop Environment |
| Viruses listed | 60-100 | 80-120 |
| Bug Fix Speed | Faster because Linux is Community driven | Slow |
| Portability | Yes | No |
| Examples | Ubuntu, Fedora, Red Hat, Kali Linux, Debian, Archlinux, Android, etc. | OS X, Solaris, All Linux |

1. What is Linux Kernel? Is it legal to edit Linux Kernel?

Linux kernel refers to the low-level system software. It is used to manage resources and provide an interface for user interaction.

Yes, it is legal to edit Linux Kernel. Linux is released under the General Public License (General Public License). Any project released under GPL can be modified and edited by the end users.

1. What is LILO?

LILO stands for LInux LOader. LILO is a Linux Boot Loader that loads Linux Operating System into the main memory to begin execution. Most of the computers come with boot loaders for certain versions of Windows or Mac OS. So, when we want to use Linux OS, we need to install a special boot loader for it. LILO is one such boot loader.

When the computer is started, BIOS conducts some initial tests and transfers control to the Master Boot Record. From here, LILO loads the Linux OS and starts it.

The advantage of using LILO is that it allows fast boot of Linux OS.

1. What are the basic components of Linux?

The basic components of Linux are:

* **Kernel:** It is the core component of the Operating System that manages operations and hardware.
* **Shell:** Shell is a Linux interpreter which is used to execute commands.
* **GUI:** GUI stands for Graphical User Interface which is another way for a user to interact with the system. But unlike CLI, GUI consists of Images, Buttons, TextBoxes for interaction.
* **System Utilities:** These are the software functions that allows the user to manage the computer.
* **Application Programs:** Software programs or set of functions designed to accomplish a specific task.

1. Which are the Shells used in Linux?

The most common Shells used in Linux are

* **bash:** Bourne Again Shell is the default for most of the Linux distributions
* **ksh:** Korn Shell is a high-level programming language shell
* **csh:** C Shell follows C like syntax and provides spelling correction and Job Control
* **zsh:** Z Shell provides some unique features such as filename generation, startup files, login/logout watching, closing comments etc.
* **fish:** Friendly Interactive Shell provides some special features like web-based configuration, auto-suggestions, fully scriptable with clean scripts

1. What is Swap Space?

Swap Space is the additional spaced used by Linux that temporarily holds concurrently running programs when the RAM does not have enough space to hold the programs. When we run a program, it resides on the RAM so that the processor can fetch data quickly. Suppose we are running more programs than the RAM can hold, then these running programs are stored in the Swap Space. The processor will now look for data in the RAM and the Swap Space.

Swap Space is used as an extension of RAM by Linux.

1. What is the difference between BASH and DOS?

* BASH commands are case sensitive while DOS commands are not.
* In BASH, / character is a directory separator and \ acts as an escape character while in DOS, / serves as a command argument delimiter and \ is the directory separator
* DOS follows a convention in naming files, which is 8-character file name followed by a dot and 3 characters for the extension. BASH follows no such convention.

1. What command would you use to check how much memory is being used by Linux?

We can use any of the following commands:

* free -m
* vmstat
* top
* htop

1. Explain file permission in Linux.

The basic Linux permissions model works by associating each system file with an owner and a group and assigning permission access rights for three different classes of users:

* + The file owner.
  + The group members
  + Others (everybody else)

All the three owners (user owner, group, others) in the Linux system have three types of permissions defined. Nine characters denotes the three types of permissions.

1. **Read (r):** The read permission allows us to open and read the content of a file. But we can't do any editing or modification in the file.
2. **Write (w):** The write permission allows us to edit, remove or rename a file.
3. **Execute (x):** In Unix type system, we can't run or execute a program unless execute permission is set. But in Windows, there is no such permission available.

**Example - File permissions for (-rw-rw-r--)**

|  |  |  |
| --- | --- | --- |
| **Position** | **Characters** | **Ownership** |
| 1 | - | denotes file type |
| 2-4 | rw- | permission for user |
| 5-7 | rw- | permission for group |
| 8-10 | r-- | permission for other |