DAY-1 QUESTION

1.what is GNU project?

Ans: GNU is a Unix-like operating system. That means it is a collection of many programs: **applications, libraries, developer tools, even games**. The development of GNU, started in J The GNU project is **a mass collaborative initiative for the development of free software**. Richard Stallman founded the project in 1978 at MIT. The GNU Linux project was started to create a Unix-like operating system created with source code that could be copied, modified, and redistributed.

2. Difference between Unix & Linux.

Ans:

| **Sr. No.** | **Key** | **Linux** | **Unix** |
| --- | --- | --- | --- |
| 1 | Development | Linux is open source and is developed by Linux community of developers. | Unix was developed by AT&T Bell labs and is not open source. |
| 2 | Cost | Linux is free to use. | Unix is licensed OS. |
| 3 | Supportd File systems | Ext2, Ext3, Ext4, Jfs, ReiserFS, Xfs, Btrfs, FAT, FAT32, NTFS. | fs, gpfs, hfs, hfs+, ufs, xfs, zfs. |
| 4 | GUI | Linux uses KDE and Gnome. Other GUI supported are LXDE, Xfce, Unity, Mate. | Unix was initially a command-based OS. Most of the Unix distributions now have Gnome. |
| 5 | Usage | Linux is used in wide varieties from desktop, servers, smartphones to mainframes. | Unix is mostly used on servers, workstations or PCs. |
| 6 | Default Shell | Bash (Bourne Again SHell) is default shell for Linux. | Bourne Shell is default shell for Unix. |
| 7 | Target processor | Linux was initially developed for Intel's x86 hardware processors. Now it supports 20+ processor families. | CUnix supports PA-RISC and Itanium family. |
| 8 | Example | Ubuntu, Debian GNU, Arch Linux, etc. | SunOS, Solaris, SCO UNIX, AIX, HP/UX, ULTRIX etc. |

3.Difference between windows and Linux.

Ans:

| S.NO | Linux | Windows |
| --- | --- | --- |
| 1. | Linux is a open source operating system. | While windows are the not the open-source operating system. |
| 2. | Linux is free of cost. | While it is costly. |
| 3. | It’s file name case-sensitive. | While its file name is case-insensitive. |
| 4. | In Linux, monolithic kernel is used. | While in this, micro kernel is used. |
| 5. | Linux is more efficient in comparison of windows. | While windows are less efficient. |
| 6. | There is forward slash is used for Separating the directories. | While there is back slash is used for Separating the directories. |
| 7. | Linux provides more security than windows. | While it provides less security than Linux. |
| 8. | Linux is widely used in hacking purpose-based systems. | While windows do not provide much efficiency in hacking. |

4.Another firmware than BIOS.

Ans: UEFI (Unified Extensible Firmware Interface) does the same task a little differently. It stores all the information about initialization and startup in an .efi file instead of the firmware. This file is stored on the hard drive inside a special partition called EFI System Partition (ESP). The ESP partition also contains the boot loader programs for the Operating System installed on the computer.

5.what is UEFI? Difference between BIOS & UEFI.

Ans: UEFI stands for Unified Extensible Firmware Interface. It does the same job as a BIOS, but with one basic difference: it stores all data about initialization and startup in an .efi file, instead of storing it on the firmware.

BIOS and UEFI are two firmware interfaces for computers which work as an interpreter between the operating system and the computer firmware. Both of these interfaces are used at the startup of the computer to initialize the hardware components and start the operating system which is stored on the hard drive.

BIOS (Basic Input Output System) works by reading the first sector of the hard drive which has the next device’s address to initialize or code to execute. BIOS also selects the boot device that needs to be initialized for starting the operating system. Since BIOS has been in use since the very beginning (it exists since the MS-DOS era), it still works in 16-bit mode, limiting the amount of code that can be read and executed from the firmware ROM.

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6. Difference between ubuntu and fedora?

Ans:

| S.NO. | Ubuntu | Fedora |
| --- | --- | --- |
| 1. | Ubuntu is a Debian Based OS. | Fedora is a community-based project by Red hat. |
| 2. | Ubuntu was initially released in October 2004. | Fedora was initially released in November 2003. |
| 3. | Ubuntu allows one-click installation for nvidia graphics driver. | It is a bit complicated and hard to install nvidia graphics driver in fedora. |
| 4. | Ubuntu uses Ubiquity installer for installing Ubuntu. | Fedora uses anaconda installer for installing Fedora. |
| 6. | Ubuntu uses apt package manager. | Fedora uses dnf package manager. |

7.various operating systems & their uses

#### Ans: Microsoft Windows.

The Windows OS has been around since the 1980s and has had several versions and updates (including Windows 95, Windows Vista, Windows 7/8/10, etc.) [Microsoft Windows](https://www.microsoft.com/en-us/windows) is one of the popular operating system types and is preloaded on most new PC hardware. With each new Windows update or release, Microsoft continues to work on improving their users’ experience, hardware, and software, making Windows more accessible and easier to use.

Microsoft Windows contains a control panel, a desktop and desktop assistant, disk cleanup, event viewer, and more. Many users prefer Microsoft Windows because they say it’s compatible with many other kinds of software. Many kinds of computer programs run best on Microsoft Windows because they’re developed by Microsoft.

Apple macOS.

Head-to-head in the competition with Microsoft Windows is Apple’s macOS. macOS and Windows are both examples of proprietary operating systems, meaning that the company conceptualized, designed, developed, and now sells their own OS. They’re designed and sold by the companies and aren’t meant to be tampered with or tweaked by users. Apple and Macintosh computers run on the proprietary macOS and OS X system, the first of which launched 20 years ago. There are also previous versions or updates which include:

Kodiak (OS X 10 Beta)

Lion (OS X 10.7)

Mountain Lion (OS X 10.8)

Mavericks (OS X 10.9)

Yosemite (OS X 10.10)

El Capitan (OS X 10.11)

Sierra (macOS 10.12)

High Sierra (macOS 10.13)

Mojave (macOS 10.14)

Catalina (macOS 10.15)

[Big Sur](https://www.apple.com/macos/big-sur/) (macOS 11)

The macOS and Apple/Mac products are also known and beloved by their users for ease of use and continually improving user experience. Fast processing speeds, a simple desktop interface, and a wide variety of helpful resources make users excited about macOS. Many users relish the instant connection with their computers and mobile phone hardware, and enjoy the lack of bugs and hackers that Apple systems are known for.

Google's Android OS.

The OS that companies including Google use to run its [Android](https://www.android.com/) mobile smartphones and tablets is based on Linux distribution and other open source software. Android OS is the primary OS for Google mobile devices like smartphones and tablets. Android has gained increasing popularity since its release as an alternative to Apple’s iOS for smartphone users and is continuing to increase in popularity with new updates and exciting features.

Apple iOS.

[Apple's iOS](https://www.apple.com/ios/ios-14/) is another mobile operating system used exclusively for iPhones, some of the most popular mobile devices on the market. iOS integrations have regular updates, new expansions to software, and continually are offering new features for users even if they have older devices.

Many users appreciate the unique user interface with touch gestures, and the ease of use that iOS offers. This operating system also allows other Apple devices to connect, giving users easy connections to other devices or people.

Linux Operating System.

[Linux](https://www.linux.com/what-is-linux/) is different from Windows and Apple in that it’s not a proprietary software, but rather a family of open-source systems. In other words, anyone can modify and distribute it. Linux may be the least known on this list, but it’s free and available in many different open-source versions. Linux is popular because of its ease of customization and offers a variety of options to those who understand how to use it. If you know how to customize and work with operating systems, Linux is an ideal choice. And if this kind of coding and back-end work is interesting to you, it may be a good idea to purchase a Linux system and get started on manipulating it.

8.various Linux distributions

## Ans: [**Linux Mint**](http://linuxmint.com/)

[Mint is a Linux distribution built on top of Ubuntu](https://www.howtogeek.com/115041/htg-explains-whats-the-difference-between-ubuntu-linux-mint/). It uses Ubuntu’s [software repositories](https://www.howtogeek.com/117579/htg-explains-how-software-installation-package-managers-work-on-linux/), so the same packages are available on both. Originally, Mint was an alternative distribution loved mainly because it included media codecs and proprietary software that Ubuntu didn’t include by default.

[**Debian**](https://www.debian.org/)

Debian is an operating system composed only of [free, open-source software](https://www.howtogeek.com/129967/htg-explains-what-is-open-source-software-and-why-you-should-care/). The Debian project has been operating since 1993 — over 20 years ago! This widely respected project is still releasing new versions of Debian, but it’s known for moving much more slowly than distributions like Ubuntu or Linux Mint. This can make it more stable and conservative, which is ideal for some systems.

Ubuntu was originally founded to take the core bits of stable Debian and improve on them more quickly, packaging the software together into a user-friendly system that’s more frequently updated.

[**Fedora**](http://fedoraproject.org/)

Fedora is a project with a strong focus on free software — you won’t find an easy way to install proprietary graphics drivers here, although third-party repositories are available. Fedora is bleeding edge and contains the latest versions of software.

Unlike Ubuntu, Fedora doesn’t make its own desktop environment or other software. Instead, the Fedora project uses “upstream” software, providing a platform that integrates all this upstream software without adding their own custom tools or patching it too much.

[**CentOS**](http://www.centos.org/)**/**[**Red Hat Enterprise Linux**](http://www.redhat.com/products/enterprise-linux/)

Red Hat Enterprise Linux is a commercial Linux distribution intended for servers and workstations. It’s based on the open-source Fedora project, but is designed to be a stable platform with long-term support.

Red Hat uses trademark law to prevent their official Red Hat Enterprise Linux software from being redistributed. However, the core software is free and open-source. CentOS is a community project that takes the Red Hat Enterprise Linux code, removes all Red Hat’s trademarks, and makes it available for free use and distribution. It’s a free version of RHEL, so it’s good if you want a stable platform that will be supported for a long time. CentOS and Red Hat recently announced they’re collaborating, so CentOS is now part of Red Hat itself

9.Difference between centos and fedora.

Ans:

| Fedora | CentOS |
| --- | --- |
| Fedora is developed by the community backed Fedora project, sponsored and funded by Red Hat. | CentOS is developed by CentOS project community using the source code of RHEL. |
| It releases new versions far more often than any other distribution. | It focuses on stability over being up-to-date or anything else. |
| It uses package managers such as DNF (command line), package kit (GUI) and RPM. | CentOS uses Yum as a default package manager. |
| It is more suited for workstation applications and non-production servers. | It is used when you need a more stable system that requires the RHEL’s feature set. |
| Fedora is free and open-source with some proprietary features. | CentOS is a community of open source contributes and users. |

10. what is getty command?

Ans: The getty command **sets and manages terminal lines and ports**. The getty command is run by the init command. This command is linked to the Terminal State Manager program. The Terminal State Manager program provides combined terminal control and login functions.

11. what is uname command?

Ans: The uname tool is most commonly used to determine the processor architecture, the system hostname and the [version of the kernel](https://linuxize.com/post/how-to-check-the-kernel-version-in-linux/) running on the system.

12. What is init command?

Ans: **init** is parent of all Linux processes with PID or process ID of 1. It is the first process to start when a computer boots up and runs until the system shuts down. init stands for initialization. In simple words the role of init is to create processes from script stored in the file /etc/inittab which is a configuration file which is to be used by initialization system. It is the last step of the kernel boot sequence.

13. Difference between initd command and system command.

Ans: init. d basically contains the **bunch of start/stop scripts which** are used to control (start, stop,reload,restart) the daemon while the system is running or during boot. If you look at /etc/init. d then you will notice all the scripts for different services of your system.

A systemd is a System Management Daemon named with UNIX convention to add 'd' at the end of daemon.