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1. **DIFFERENT VERSIONS OF WINDOWS AND LINUX** ?

WINDOWS DIFFERENT VERSIONS

VERSION	RELEASE DATE
WINDOWS 1.01	1985-11-20
WINDOWS 2.01	1988-05-27
WINDOWS 3.0	1990-05-22
WINDOWS MILLENIUM	2000-09-14
WINDOWS XP	2001-10-25
WINDOWS VISTA	2007-01-30
WINDOWS7	2009-10-22
WINDOWS 8	2021-10-05
WINDOWS 10	2015-07-29
WINDOWS 11	2021-10-05

DIFFERENT VERSIONS OF LINUX

VERSIONS	RELEASE YEAR
DEBIAN	1993

GENTOO	2002
UBUNTU	2004
LINUX MINT	2006
FEDORA	2003
KALI LINUX	2013
RED HAT	2003
CENTOS	2003
ARCH LINUX	2002
OPEN SUSE	2005

WINDOWS DIFFERENT VERSIONS:

1. WINDOWS 1.0:

Windows 1.0 is the first major release of Microsoft Windows, a family of graphical operating systems for personal Computers developed by Microsoft.

Windows 1.0 runs on MS- DOS, as a 16-bit shell program known as MS-DOS Executive, and it provides an environment which can run graphical programs designed for Windows, as well as existing MS-DOS software. It introduced multitasking and the use of the mouse, and various built-in programs such as Calculator, Paint, and Notepad.

2. WINDOWS 2.0:

Windows 2.0 differs from its predecessor by allowing users to overlap and resize application windows, while the operating environment also introduced desktop icons, keyboard shortcuts, and support for 16-color VGA graphics. It also introduced Microsoft Word and Excel, and integrated the Control Panel.

3. **WINDOWS 3.0:**

It features a new graphical user interface (GUI) where applications are represented as clickable icons, as opposed to the list of file names seen in its predecessors. Windows 3.0 is the first version of Windows to perform well both critically and commercially.

4. **WINDOWS MILLENIUM:**

It was Microsoft's main operating system for home users until the introduction of its successor Windows XP in October 2001.[Windows Me was targeted specifically at home PC users, and included Internet Explorer 5.5 the new Windows Movie Maker software, which provided basic video editing and was designed to be easy to use for consumers.[Windows Me featured the shell enhancements inherited from Windows 2000 such as personalized menus, customizable Windows Explorer toolbars, auto-complete in Windows Explorer address bar and Run box[6]

5. **WINDOWS XP:**

While retaining some similarities to previous versions, Windows XP's interface was overhauled with a new visual appearance, with an increased use of alpha compositing effects, drop shadows, and "visual styles", which completely changed the appearance of the operating system. The default wallpaper, *Bliss*, is a photo of a landscape in the Napa Valley outside Napa, California, with rolling green hills and a blue sky with stratocumulus and cirrus clouds.

Start menu received its first major overhaul in XP, switching to a two-column layout with the ability to list, pin, and display frequently used applications, recently opened documents, and the traditional cascading "All Programs" menu.[23]

Faster start-up, (because of improved prefetch functions) logon, logoff, hibernation, and application launch sequences

6. **WINDOWS 7:**

It is the successor to Windows Vista, released nearly three years earlier. It remained an operating system for use on personal computers, including home and business desktops, laptops, tablet PCs and media center PCs. Among Windows 7's new features are advances in touch and handwriting recognition support for virtual hard disks improved performance on multi-

core processors, improved boot performance, DirectAccess, and kernel improvements.
The taskbar has seen the biggest visual changes, where the old Quick Launch toolbar has been replaced with the ability to pin applications to the taskbar. Buttons for pinned applications are integrated with the task buttons. Windows 7 includes 13 additional sound schemes, titled Afternoon, Calligraphy, Characters, Cityscape, Delta, Festival, Garden, Heritage, Landscape, Quirky, Raga, Savanna, and Sonata.

7. **WINDOWS 8:**

Windows 8 introduced major changes to the operating system's platform and user interface intended to improve its user experience on tablets, where Windows was now competing with mobile operating systems, including Android and iOS. Windows Explorer, which has been renamed File Explorer, now includes a ribbon in place of the command bar. File operation dialog boxes have been updated to provide more detailed statistics, the ability to pause file transfers, and improvements in the ability to manage conflicts when copying files. Task Manager has been redesigned, including a new processes tab with the option to display fewer or more details of running applications and background processes.

8. **WINDOWS 10:**

Windows 10 makes its user experience and functionality more consistent between different classes of device, and addresses most of the shortcomings in the user interface that were introduced in Windows 8. Windows 10 supports universal apps, an expansion of the Metro-style first introduced in Windows 8. Universal apps can be designed to run across multiple Microsoft product families with nearly identical code—including PCs, tablets, smartphones, embedded systems, Xbox One, Surface Hub and Mixed Reality. A new iteration of the Start menu is used on the Windows 10 desktop, with a list of places and other options on the left side, and tiles representing applications on the right. The operating system includes improved support for biometric authentication through the Windows Hello platform.
The console windows based on Windows Console (for any console app, not just PowerShell and Windows Command Prompt) can now be resized without any restrictions, can be made to cover the full screen by pressing Alt+↵ Enter, and can use standard keyboard shortcuts, such as those for cut, copy, and paste.

9. **WINDOWS 11:**

Windows 11 features major changes to the Windows shell influenced by the cancelled Windows 10X, including a redesigned Start menu, the replacement of its "live tiles" with a separate "Widgets" panel on the taskbar. Windows 11, the first major Windows release since 2015, builds upon its predecessor by revamping the user interface to follow Microsoft's new Fluent Design guidelines.

The Microsoft Store, which serves as a unified storefront for apps and other content, is also redesigned in Windows 11. Microsoft now allows developers to distribute Win32, progressive web applications, and other packaging technologies in the Microsoft Store alongside Universal Windows Platform apps.

A redesigned user interface is present frequently throughout the operating system, building upon Fluent Design System; translucency, shadows, a new colour palette, and rounded geometry are prevalent throughout the UI. A prevalent aspect of the design is an appearance known as "Mica", described as an "opaque, dynamic material that incorporates theme and desktop wallpaper to paint the background of long-lived windows such as apps and settings".

Linux different versions

1. **DEBIAN:**

   Debian is renowned for being a mother to popular Linux distributions such as **Deepin**, **Ubuntu,** and **Mint** which have provided solid performance, stability, and unparalleled user experience. The latest stable release is **Debian 10.5**, an update of **Debian 10** colloquially known as **Debian Buster**.

   The **Debian** project provides over **59,000** software packages and supports a wide range of PCs with each release encompassing a broader array of system architectures. It strives to strike a balance between cutting edge technology and stability. Debian provides 3 salient development branches: **Stable**, **Testing,** and **Unstable**.

2. **GENTOO:**

   Gentoo is a distro built for professional use and experts who take into consideration what packages they are working with from the word go. This category includes developers, system & network administrators. As such, it's not ideal for beginners in Linux. **Gentoo** comes recommended for those who want to have a deeper understanding of the ins and outs of the Linux operating system.

   Port collections are sets of patches and make files provided for by BSD-based distros such as Open BSD and Net BSD.

3. **UBUNTU:**

Ubuntu is one of the most popular Linux distros enjoyed across the globe by beginners, intermediate users, and professionals alike. **Ubuntu** was specifically designed for beginners in Linux or those transitioning from mac and Windows

It provides numerous improvements and new features such as the new **Yaru** theme, new look and polished icons, great support for Snap packages, and the fractional scaling functionality that provides support for high-resolution displays.

Due to its user-friendliness and elegant UI, **Ubuntu** is ideal for desktop users and newcomers who are trying to wrap their head around Linux. They can readily get started with default Apps as stated earlier on as they work their way towards getting a better understanding of Linux.

4. **LINUX MINT:**

Linux Mint is a hugely popular community-driven Linux distro based on **Ubuntu**. It has transcended time to provide one of the most elegant, and user-friendly distributions loved by desktop users and professionals alike. Despite the controversy surrounding the latest release – **Mint 20** – dropping **snap** support by default, Mint remains a stable, powerful and outstanding Linux distribution.

5. **RED HAT :**

Red Hat Enterprise Linux is a Linux distro designed for Enterprise or commercial purposes. It's one of the leading open-source alternatives to other proprietary systems such as **Microsoft**. **Red Hat** is usually a top choice for server environments given its stability and regular security patches which boost its overall security.

You can readily set it up on physical servers, virtual environments such as **VMware**, **Hyper V,** and also on the cloud. **Red Hat** has done a perfect job in containerization technology thanks to **Open Shift PaaS** (platform as a service).

6. **FEDOREA:**

Fedora has enjoyed a reputation for being one of the most user-friendly distros for quite a while now owing to its simplicity and out-of-the-box applications which enable newcomers to easily get started.

It's a powerful and flexible operating system that's tailored for desktops & laptops, servers, and even for IoT ecosystems. **Fedora**, just like **CentOS**, is based on **Red Hat** and is in fact, a testing environment for **Red Hat** before transitioning to the Enterprise phase. As such, it's usually used for development and learning purposes and comes in handy for developers and students.

7. KALI LINUX:

Kali Linux is a Debian-based Linux distro designed for penetration testing and conducting digital forensics. It ships with out-of-the-box tools meant for penetration testing such as Nmap, Metasploit Framework, Maltego, and Aircrack-ng to mention a few.

Kali Linux is meant for Cybersecurity experts and students who want to venture into penetration testing. In fact, Kali provides industry-standard certifications such as Penetration Testing with Kali and Kali Linux Certified Professional.

2. DIFFERENCE BETWEEN WINDOWS AND LINUX?

LINUX:

1. Linux is an open source operating system.
2. As it is open source software it is free of cost.
3. It's file name is case-sensitive so files with same names cannot be allowed.
4. In Linux, monolithic kernel is used.
5. Linux is more efficient and perform in less time as compared to windows.
6. Forward slash is used to separate directories in Linux operating system.
7. Linux provides more security than windows and can be operated from command line itself which makes it more powerful.
8. Linux is mostly used in hacking,coding and handling more confidential details.
9. There are 3 types of user account –

(1) Regular, (2) Root , (3) Service account

10. Linux file naming convention in case sensitive. Thus, sample and SAMPLE are 2 different files in Linux/Unix operating system.

WINDOWS:

1. Windows is not an open source software , it will be pre installed in pc's or it need to be done illegally.
2. Windows activation requires subscription. So it is not free of cost.
3. Windows file names are not case sensitive as compared to linux.
4. Windows uses microkernel while linux uses monolithic kernel.
5. Windows is less effective as compared to linux.
6. Back slash is used for seperating the directories.
7. Windows does not provide much efficiency in hacking as compared to linux.

8. There are 4 types of user account – (1) Administrator , (2) Standard , (3) Child , (4) Guest.
9. In Windows, you cannot have 2 files with the same name in the same folder.
10. Administrator user has all administrative privileges of computers, whereas in linux, Root user is the super user and has all administrative privileges.

1. Explain basic differences between PC OS and Mobile OS?

DESKTOP OS:

1. Control Main program or environment through which user controls a personal computer and it manages all applications and programs in a computer.
2. It helps in managing the hardware and software of the system . It helps in the integration f both hard ware and software.
3. It boots slower in hard drive than Solid drive . It boots slowly as compared to mobile OS.
4. Its uses hard drive / flash drive to store data/information in the computer .
5. The OS is not optimised for the energy loss in the computer. So energy loss optimisation lacks.
6. The interface for operating are mouse, keyboard,mouse.
7. The OS requires a perfect amount of memory for proper working .
8. -Full featured. Designed to take advantages of fast CPUs, large amount of disk space, and RAM
9. -Based on X86 majorly it is more flexible in terms of interoperability
10. The most common operating systems for desktop systems are Microsoft Windows, MacOS, and Linux. Modern operating systems use Graphical User Interface (GUI).

MOBILE OS:

1. It allows smartphones, tablet PCs, and other devices to run applications and programs.

2. Manages cellular and wireless connectivity, and phone access with more efficiency.
3. Uses flash drive to store data/information. Memory card can be used for more storage.
4. It was optimized to work under minimal power requirements and have feature to prevent energy loss. The power retaining capacity is more as compared to Desktop OS.
5. Mobile OS operates with touchscreen or touch pad.
6. It was optimised to word on minimum RAM as compared to DESKTOP OS.
7. It boots faster than the Desktop OS.
8. It was specialized for specific set of devices like mobiles, tablet etc.
9. It was Limited or no interoperability (Mobile apps are strictly hardware specific).
10. Apple iOS, Google Android, Bada (Samsung electronics), Blackberry OS, iPhone OS / iOS, Symbian OS, Windows Mobile OS, Harmony OS, Palm OS, Web OS (Palm/HP) etc