OS experiment no. 01

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Batch : B2

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1) Students have to explore different types of operating systems and differentiate them on the basis of pros and cons.

Ans) Operating systems are the interface through which user and system interacts.

- MAC is an OS that focuses on the graphical user interface and was developed by Apple, Inc for their Macintosh systems.
- Microsoft developed the Windows operating system. It was developed so as to overcome the limitation of the MS-DOS operating system.
- Linux is UNIX like a source software and can use an operating system which provides full memory protection and multi-tasking operations. It is an open d by anyone.

Windows :

- Windows was released in 1985. It was supposed to be Graphical interface on top of MS DOS.
- Windows follows a directory structure to store different kinds of files of the user.it has logical drivers and cabinet drawers.
- Windows registry is a master database which is used to store all settings on our computer.
- The Windows operating system (*Windows OS*) for desktop PCs are more formally called Microsoft Windows and is actually *a family of operating systems* for personal computers.
- Windows dominates the personal computer world, running, by some estimates, more than 90 percent of all personal computers – the remainder
  running Linux and Mac operating systems.

MACOS:

- The Mac OS X and iOS evolved from an earlier Apple operating system, Darwin, based on BSD UNIX. iOS is a proprietary mobile operating system owned by Apple and it is only allowed to be installed in Apple equipment. The current version iOS 7 uses approximately 770 megabytes of the device's storage.
- Mac OS has a reputation for being secure by default. But that mostly means that it is not operating several network services out-of-the-box which can be attacked. The Apple T2 Security Chip embedded with many newer Mac models keeps Mac OS safer than ever.
- Secure Enclave coprocessor in the Apple T2 chip presents the foundation for Touch ID, secure boot, File Vault, and encrypted storage capabilities.
- The T2 chip also presents a default tactic of obstructing the free and open-source software from loading up. macOS system security encompasses the boot-up process, software updates and the ongoing operation of the OS.
- Macs face fewer viruses compared to the Microsoft Windows operating system. It's not like macOS is free of malware and we see vulnerabilities found in the OS from time to time.
- PCs have been more popular, with the number of Windows operating systems connecting to the web far exceeding those of Macintosh or Linux.
- The result has been an influx of cyber-attacks targeted at PC users and the Windows operating system. But now the times are changing, and Mac OS X's market share is about 10%, and therefore cybercriminals are taking notice and beginning to set their sights on the Apple operating system.

Linux :

- Linux is the best-known and most-used open-source operating system. As an operating system, Linux is software that sits underneath all of the other software on a computer, receiving requests from those programs and relaying these requests to the computer's hardware.
- It was initially developed in Finnish University. It was released in 1991 and was developed for GNU users. It is open to consumers and can be used as specification.

Comparison of the Operating Systems(Windows vs Linux vs MacOS)

The basis of Comparison	Windows	MAC	Linux
Basic difference and history	Windows was first released in 1985. It was supposed to be a graphical user interface on top of MS-DOS. All features of MS-DOS were later integrated with Windows 95 release. It was a huge success in and led to the Windows transition.	This operating system from Apple stands older than Windows. It was first released in 1984. It began as a graphical user interface right from its inception. In 2005 the design and structure of MAC OS were changed to Intel x86 based architecture.	It was initially developed at Finnish University. It was released in 1991 and designed for GNU developers. GNU developers later integrated it into Linux. It is open to consumers, and everyone can use it as per their specifications.
File structure	Windows follows a directory structure to store the different kinds of files of the user. It has logical drives and cabinet drawers. It also has folders. Some common folders like documents, pictures, music, videos, and downloads. All these files can be stored in these folders, and also new folders can be created. It also has files which can be a spreadsheet or an application program. It can have extensions as .txt, .jpg etc. In addition to this, Windows also provides	The file structure of MAC is commonly known as MAC OS X. If you go to dig into your MAC's hard disk through the finder, you will see many directories. The root directory of MAC may encounter when they visit their own MAC book. You can explore the file system and directory structure by going to directories like /Application, /Developer, /sbin, /tmp, etc.	Linux has a completely different file structure form Windows and MAC. It was developed with a different code base. It stores data in the form of a tree. There is a single file tree, and all your drives are mounted over this tree.

	a recycle bin where all deleted files can be stored. Recycle bin can be configured to increase its size.		
Registry	Windows registry is a master database that is used to store all settings on your computer. It is responsible for storing all user information with its passwords, and device relate information. The registry also has an editor which allows you to view all keys and values or even drivers if necessary.	MAC stores all application settings in a series of .plist files, which have the various preferences folder in MAC. This .plist file contains all properties in either plain text or binary format. These are stored at: /Library/Preferences folder	Linux also does not have a specific registry of its own. All application setting is stored on a program basis under the different users in the same hierarchy format of the files being stored. There is no centralized database for storing these details, and so periodic cleaning is also not required.
Interchangeable Interfaces	Windows interface was not interchangeable until Windows 8. Windows XP had some improvements but not par. Start menu, taskbar, system tray, and Windows Explorer.	MAC has a facility to bridge virtual network interfaces. This can be done by going to system preferences and managing the interfaces.	Linux is easy to switch interfaces. You can switch the environment without having to carry all installations. There are utilities like GNOME and KDE which help in catering to these needs. They help in focusing on different aspects.
Command terminal	A terminal or command prompt is a black box ideally used to execute commands. It is also called the Windows Command Processor. It is used to execute commands and different batch files. It can also be used for administrative	MAC provides a console as a terminal application. It has a console, command line, prompt and terminal. A Command-line is used to type your commands. Prompt will provide you with some information and also enable you to run	Linux also provides a terminal. You can find terminal at: Applications -> System or Applications -> Utilities. In addition to this, there is also a shell prompt. The most common shell used in bash. It defines how the terminal will behave and look when it is run.

	functions and troubleshoot and solve all windows issues.	commands. A terminal is an actual interface that will provide the modern graphical user interface as well. You can find the terminal at Applications -> Utilities.	

2) Take any 5 domains like gaming, finance, banking etc and suggest which OS will be best suitable for these domains.

Domains and OS:

Hacking: kali linux.

Gaming: Win10

Coding: gnu linux

Business: Windows Pro

Banking: Windows/MAC

Outcomes:

CO1: Understand basic structure of modern operating system.

Conclusion:

We learnt about the basics of operating systems, their types, and then compared the different types of operating systems on the basis of their pros and cons.

Grade: AA/AB/BB/BC/CC/CD/DD

Signature of faculty in-charge with date

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