Operating System Basics

Objectives

- Understand on what is Operating System
- Identify different examples of Operating System
- Analyze different capabilities of Operating System
- Understand how does Operating System works
- Identify different types of Operating System

Operating System (OS)

- It is a low-level software program that enables the computer hardware to communicate and operate with the computer software. Without a computer operating system, a computer and software programs would be useless
- It is a collection of software that manages computer hardware resources and provides common services for computer programs.

Examples of Operating Systems

- **Microsoft Windows 7**
- **Apple MacOS**
- **Ubuntu Linux**
- **Google Android**
- **iOS**

Characteristics of Operating System

- **GUI -** Short for Graphical User Interface, a GUI Operating System contains graphics and icons and is commonly navigated by using a computer mouse.
- **Multi-user -** A multi-user operating system allows for multiple users to use the same computer programs at the same time and different times.

Characteristics of Operating System

- **Multiprocessing -** An operating system capable of supporting and utilizing more than one computer processor.
- **Multitasking -** An operating system that is capable of allowing multiple software processes to run at the same time.
- **Multithreading -** Operating systems that allow different parts of a software program to run concurrently.

Characteristics of Operating System

- **Real – time -** responds to input instantly. General-purpose operating systems, such as DOS and UNIX, are not real-time.

The Operating System's Job

- It runs tests to make sure everything is working correctly.
- It checks for new hardware.
- It then starts up the operating system.
- It manages all of the software and hardware on the computer

Three Most Common Operating System

Three Most Common Operating System

- Microsoft Windows
- Apple Mac OS X
- Linux
  - Each operating system's GUI has a different look and feel. Switching to a different operating system may seem unfamiliar at first. However, modern operating systems are designed to be **easy to use**, and most of the basic principles are the same.

Three Most Common Operating System

- Modern operating systems use a **graphical user interface**, or **GUI** (pronounced **gooey**). A GUI lets you use your mouse to click **icons**, **buttons**, and **menus**, and everything is clearly displayed on the screen using a combination of **graphics** and **text**.

Microsoft Windows

- Microsoft created the **Windows** operating system in the mid-1980s. Over the years, there have been many different versions of Windows, but the most recent ones are **Windows 10** (released in 2014), **Windows 8** (released in 2012), **Windows 7** (2009), and **Windows Vista** (2007). Windows comes **preloaded** on most new PCs, which helps to make it the **most popular operating system** in the world.

Microsoft Windows

- If you're buying a new computer or are upgrading to a newer version of Windows, you can choose from several different **editions** of Windows, such as **Home Premium**, **Professional**, and **Ultimate**. You may need to do some research to decide which edition is right for you.

Windows 7

Windows 10


Miranda Vance
Most used
Word
Mail
People
News
OneDrive
Calculator
Suggested
Cars: Fast as Lightning
File Explorer
Settings
Power
All Apps
New
Life at a glance
Bruce Vandiver
I am excited for our trip! My sister says the food trucks downtown are
Mail
10
Interview new consultant
Fourth Coffee
4:00 PM
Monday 13
Maps
Photos
Store
Work
Entertainment
Xbox
HALO
Would you like to enter Tablet Mode?
Yes
No
Always ask me
Search the web and Windows

Apple Mac OS X

- **Mac OS** is a line of operating systems created by Apple Inc. It comes preloaded on all new Macintosh computers, or Macs. All of the recent versions are known as **Mac OS X** (pronounced Mac O-S Ten), and their specific version include **Yosemite** (released in 2014), **Mavericks** (2013), **Mountain Lion** (released in 2012), **Lion** (2011), and **Snow Leopard** (2009). Apple also offers a version called **Mac OS X Server**, which is designed to be run on servers.

MAC OS X Mountain Lion

MAC OS X Mountain Lion

- According to StatCounter Global Stats, Mac OS X users account for **9.5%** of the operating systems market as of September 2014—much lower than the percentage of Windows users (almost **90%**). One reason for this is that Apple computers tend to be more expensive. However, many people prefer the look and feel of Mac OS X.

Linux

- **Linux** (pronounce LINN-ux) is a family of **open source** operating systems, which means that they can be modified and distributed by anyone around the world. This is very different from **proprietary software** like Windows, which can only be modified by the company that owns it (Microsoft).

Linux

- The advantages of Linux are that it is **free**, and there are many different **distributions** (or versions) that you can choose from. Each distribution has a different look and feel, and the most popular ones include **Ubuntu**, **Mint**, and **Fedora**.

Ubuntu

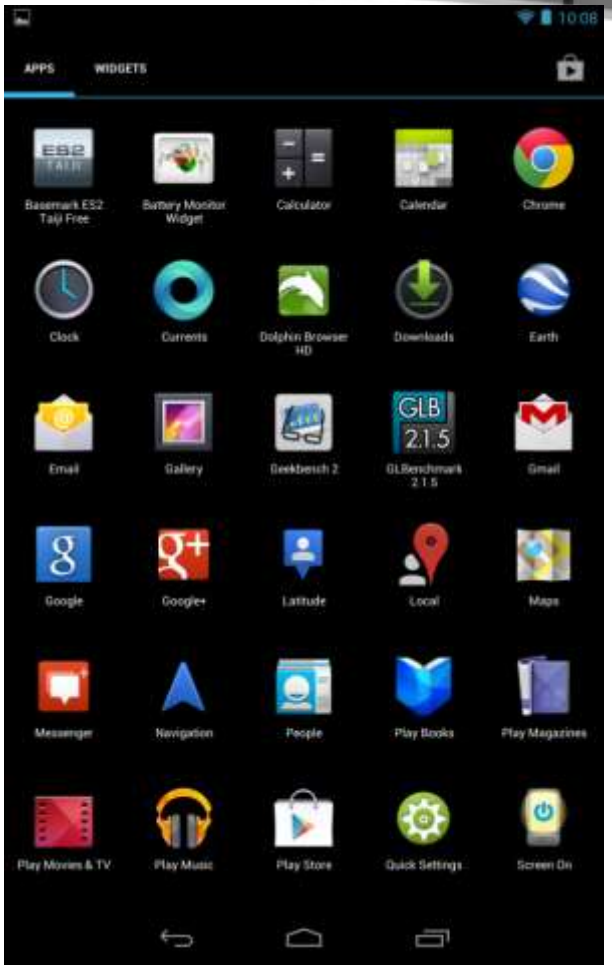

Applications
Places
System
Live session user
Sun Apr 20, 12:48 AM
Home Folder
Desktop
Documents
Music
Pictures
Videos
Computer
CD/DVD Creator
Floppy Drive
21.0 GB Media
Network
Connect to Server...
Search for Files...
Examples
Install
ubuntu - File Browser
File
Help
Stop
Reload
Home
Computer
Search
100%
View as Icons
Documents
Music
Pictures
Public
Templates
Floppy Drive
21.0 GB Media
7 items, Free space: 492.7 MB
ubuntu - File Browser

- According to StatCounter Global Stats, Linux users account for less than **2%** of the operating systems market as of September 2014. However, most **servers** run Linux because it's relatively easy to customize.

Operating System on Mobile Devices

- **Mobile devices** such as phones, tablet computers, and mp3 players are very different from desktop and laptop computers, so they run operating systems that are designed specifically for mobile devices. Examples of mobile operating systems include **Apple iOS**, **Windows Phone**, and **Google Android**.

Operating System on Mobile Devices



Command Line Interface (CLI)

- The command line interface is a user interface that is navigated by typing commands at prompts, as opposed to using the mouse to perform a command.
- Because a command line interface requires unique commands, this interface is often more difficult to learn because of the need to memorize dozens of different commands.

Microsoft Windows

- **Windows OS,** computer operating system (OS) developed by Microsoft Corporation to run personal computers (PCs). Featuring the first graphical user interface (GUI) for IBM-compatible PCs, the Windows OS soon dominated the PC market. Approximately 90 percent of PCs run some version of Windows.
- The first version of Windows, released in 1985, was simply a GUI offered as an extension of Microsoft's existing disk operating system, or MS-DOS.

Microsoft Windows Versions

- Windows 1.0 – first version of Windows released on November 1985. It is not a complete operating system.
- Windows 2.0 – released in December 1987. It features more improve user interface and memory management. It also introduced sophisticated keyboard shortcuts and could make use of expanded memory.

Microsoft Windows Versions

- Windows 3. 0 – released in 1990. Introduced virtual memory and loadable virtual drivers. First Microsoft Windows version to achieve broad commercial success, selling 2 million copies in the first six months.
- Windows 95 – was released on August 24, 1995. Introduced the support for native 32-bit applications, plug and play hardware, preemptive multitasking, long file names of up to 255 characters, and provided increased stability over its predecessors.

Microsoft Windows Versions

- Windows 95 also introduced a redesigned, object oriented user interface, replacing the previous Program Manager with the Start menu, taskbar, and Windows Explorer shell.
- Windows 98 – released on June 25, 1998. It introduced the Windows Driver Model, support for USB composite devices, hibernation, and support for multi-monitor configurations. Windows 98 also included integration with Internet Explorer 4 through Active Desktop and other aspects of the Windows Desktop Update

Microsoft Windows Versions

- Windows ME – released in September 2000. The last DOS-based version of Windows. It had faster boot times than previous
versions, expanded multimedia functionality, additional system utilities such as System File
Protection and System Restore, and updated home networking tools

Microsoft Windows Versions

- Windows XP – released on October 25, 2001. The introduction of Windows XP aimed to unify the consumer-oriented Windows 9x series with the architecture introduced by Windows NT, a change which Microsoft promised would provide better performance over its DOS-based predecessors. Windows XP would also introduce a redesigned user interface (including an updated Start menu and a "task-oriented" Windows Explorer), streamlined multimedia and networking features, Internet Explorer 6, integration with Microsoft's

Microsoft Windows Versions

- Windows Vista - was released on November 30, 2006 for volume licensing and January 30, 2007 for consumers. It contained a number of new features, from a redesigned shell and user interface to significant technical changes, with a particular focus on security features
- Windows 7 – released on July 2009 for RTM. On October 22, 2009, it was released for public. Windows 7 was intended to be a more focused, incremental upgrade to the Windows line, with the goal of being compatible with applications and hardware.

Microsoft Windows Versions

- Windows 7 has multi-touch support, a redesigned Windows shell with an updated taskbar, a home networking system called HomeGroup, and performance improvements.
- Windows 8, the successor to Windows 7, was released generally on October 28, 2012. A number of significant changes were made on Windows 8, including the introduction of a user interface based around Microsoft's Metro design language with optimizations for touch-based devices such as tablets and all-in-one PCs.

UNIX

- UNIX is an operating system which was first developed in the 1960s, and has been under constant development ever since. By operating system, we mean the suite of programs which make the computer work. It is a stable, multi-user, multi-tasking system for servers, desktops and laptops. UNIX systems also have a graphical user interface (GUI) similar to Microsoft Windows which provides an easy to use environment.

Three parts of UNIX

- **The kernel.** The kernel of UNIX is the hub of the operating system: it allocates time and memory to programs and handles the filestore and communications in response to system calls.
- **The shell.** The shell acts as an interface between the user and the kernel. When a user logs in, the login program checks the username and password, and then starts another program called the shell. The shell is a command line interpreter (CLI).

Three parts of UNIX

- A **process** is an executing program identified by a unique PID (process identifier). A **file** is a collection of data. They are created by users using text editors, running compilers etc.

References

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