SHAKARIM UNIVERSITETI
SEMEY

Computer Software.
Operating systems. Desktop applications

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Purpose

- Evolution of operating systems.
- Classification of operating systems.
- Operating systems DOS, Windows, Unix, Linux, Mac OS.
- Operating systems for mobile devices.
- Classification of desktop applications.

Answer my questions

- What is the definition of system ?
- What is the definition of information systems ?
- What does mean software ?
- What does mean hardware ?
- What does mean database ?
- Describe the system unit ?
- Tell me about types of computers ?
- What is the ENIAC ?
- Who is the first inventor of computer engine ?
- What is the smallest unit of information's volume measurement ?
- What is the code ?
- What is the encoding ?
- Tell me about various forms of information ?

Vocabulary

1. _____ - база данных
2. Software - _____
3. _____ - аппаратные средства
4. Storage of data - _____
5. _____ - передавать информацию
6. Calculate - _____
7. _____ -сравнивать
8. Sort - _____
9. _____ - интерфейс пользователя
10. Machine readable – _____

Vocabulary

1. Data entry - _____
2. _____ - бинарная система нумерации
3. Decimal numbering system - _____
4. _____ - обнаруживать
5. Invent - _____
6. _____ - измерение
7. Denote - _____
8. _____ - рассматривать
9. Disseminate – _____
10. _____ - жест

Evolution of Operating Systems

- Early Systems (1950)

- Simple Batch Systems (1960)

- Multiprogrammed Batch Systems (1970)

- Time-Sharing and Real-Time Systems (1970)

- Personal/Desktop Computers (1980)

- Multiprocessor Systems (1980)

- Networked/Distributed Systems (1980)

- Web-based Systems (1990)

Example of an early computer system
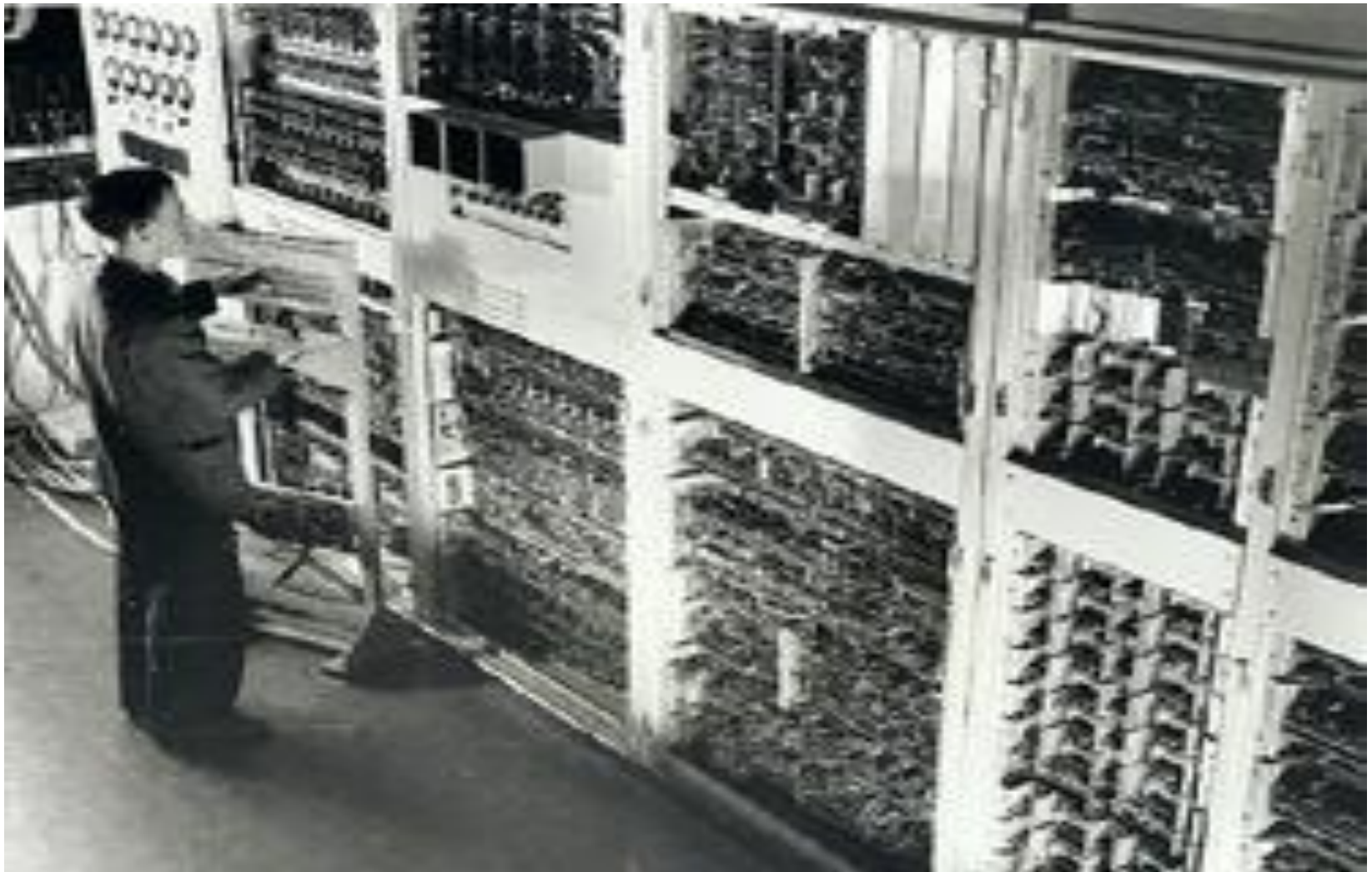
# Classification of operating systems.

- Operating systems can be grouped into the following categories:

- **Supercomputing** is primarily scientific computing, usually modeling real systems in nature. Render farms are collections of computers that work together to render animations and special effects. Work that previously required supercomputers could be done with the equivalent of a render farm. Such computers are found in public research laboratories, Universities, Weather Forecasting laboratories, Defense and Energy Agencies, etc.

- **Mainframes** used to be the primary form of computer. Mainframes are large centralized computers. At one time, they provided the bulk of business computing through **time-sharing**. Mainframes and **mainframe replacements** (powerful computers or clusters of computers) are still useful for some large-scale tasks, such as centralized billing systems, inventory systems, database operations, etc. When mainframes were in widespread use, there was also a class of computers known as **minicomputers** that were smaller, less expensive versions of mainframes for businesses that could not afford mainframes.

- **Servers** are computers or groups of computers used for Internet serving, intranet serving, print serving, file serving and/or application serving. Clustered Servers are sometimes used to replace mainframes.

- **Desktop** operating systems are used on standalone personal computers.

- **Workstations** are more powerful versions of personal computers. Often only one person uses a particular workstation that run a more powerful version of a desktop operating system. They usually have software associated with larger computer systems thru a LAN network.

Classification of operating systems.

- **Handheld** operating systems are much smaller and less capable than desktop operating systems, so that they can fit into the limited memory of handheld devices. Barcode scanners, PDA's, are examples of such systems. Currently, the PDA world is witnessing an operating system battle between several players (Microsoft Windows, iPAQ, etc.)

- **Real time** operating systems (RTOS) are designed to respond to events that happen in real time. Computers using such operating systems may run ongoing processes in a factory, emergency room systems, air traffic control systems or power stations. The operating systems are classified according to the response time they need to deal with: seconds, milliseconds, micro-seconds. They are also classified according to whether or not they involve systems where failure can result in loss of life. As in the case of supercomputers, there are no such systems in Lebanon today. However, given the way the technology is growing, it may be possible to use them in the future.

- **Embedded systems** are combinations of processors and special software that are inside another device, such as contents switches or Network Attached Storage devices.

- **Smart Card Operating Systems** are the smallest Operating Systems of all. Some handle only a single function, such as electronic payments, others handle multiple functions. Often these OS are proprietary systems but we are seeing more and more smart cards that are Java oriented.

- **Specialized Operating systems,** like Database Computers are dedicated high performance data warehousing servers.

- The above Operating Systems are commonly found in government agencies and private industries.

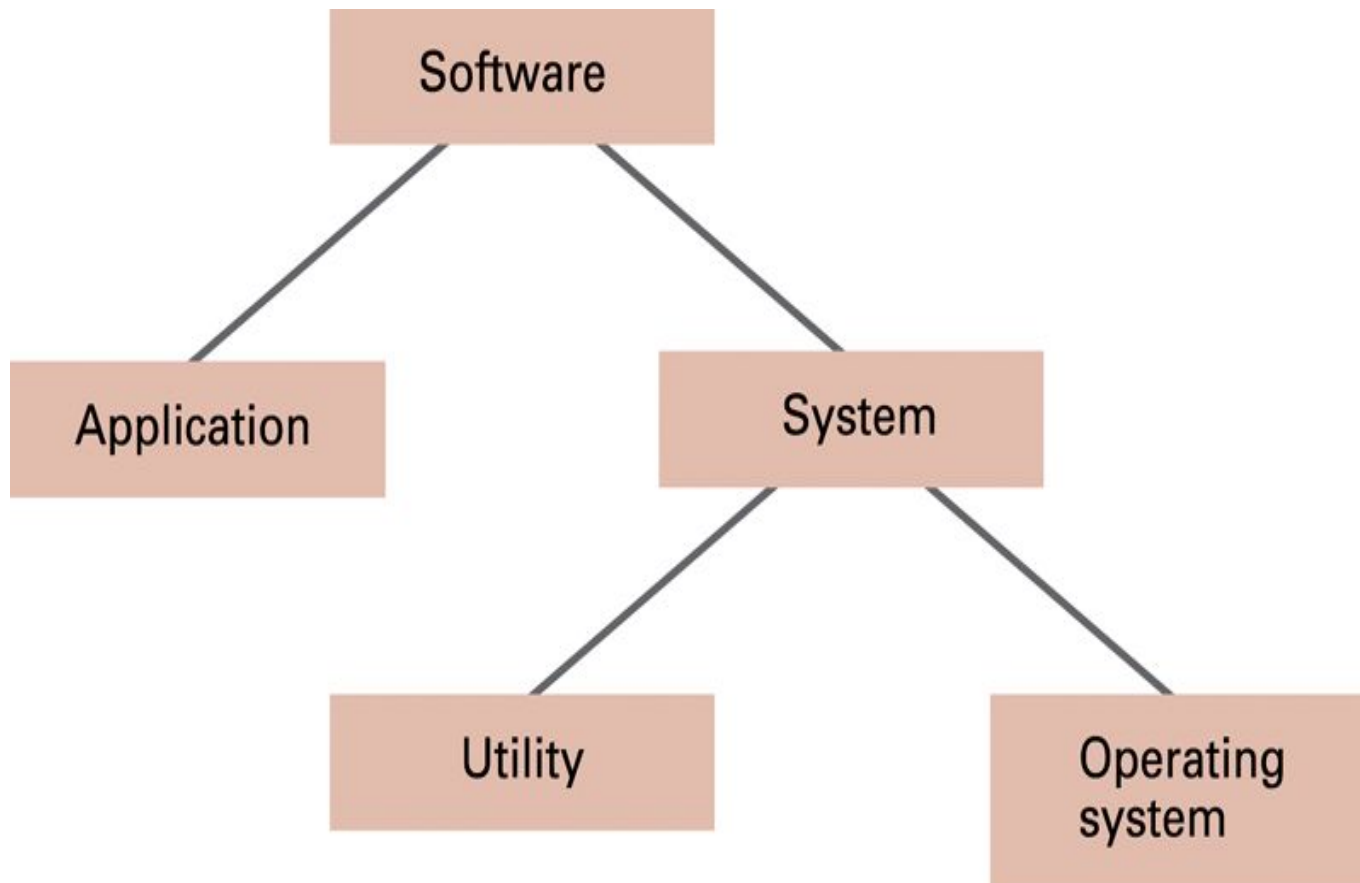# Operating systems DOS, Windows, Unix, Linux, Mac OS.

- Later, instructions were given to the computer with punch cards or magnetic tape.

- *If you wanted to run a different program, you had to wipe out the first program from memory and then load another program into memory*.
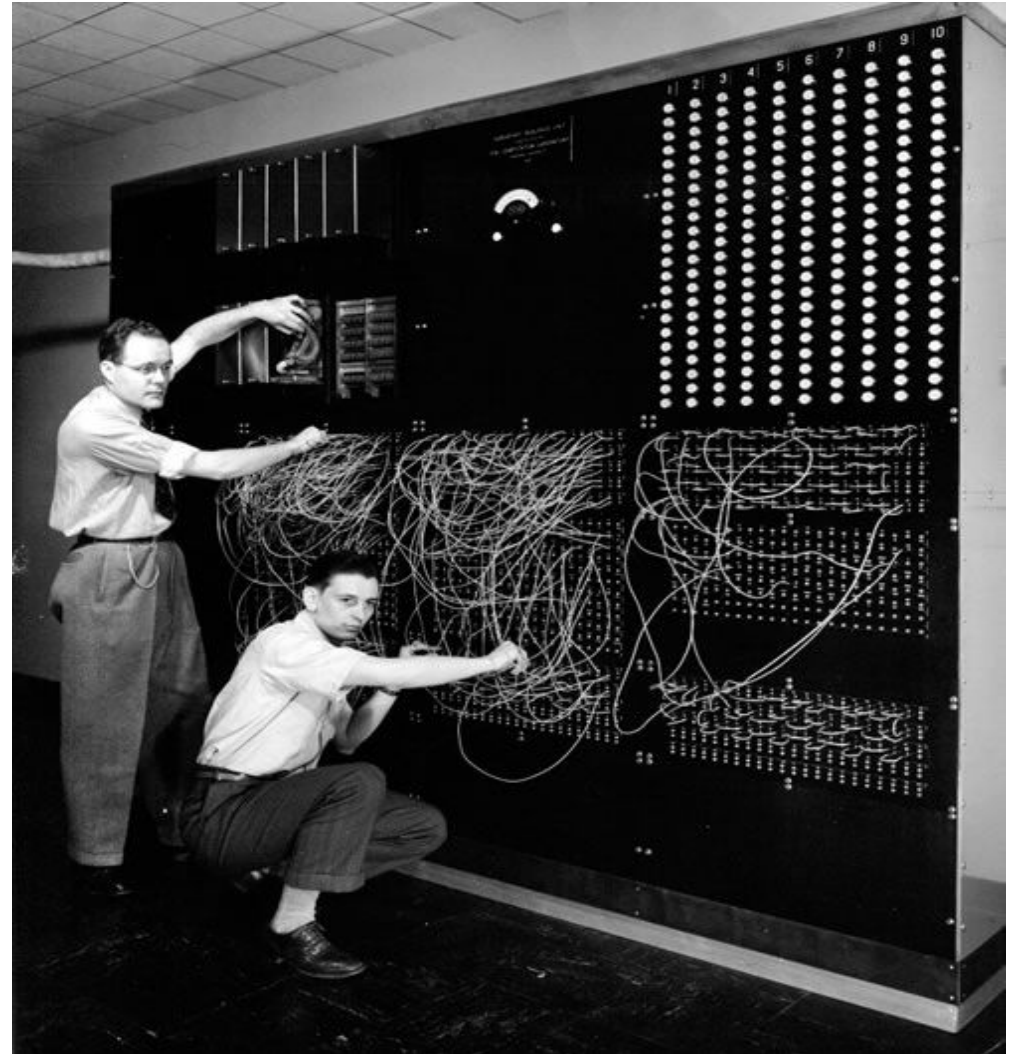
Software classification

What is OS?

It is the software that enables all the programs we use.

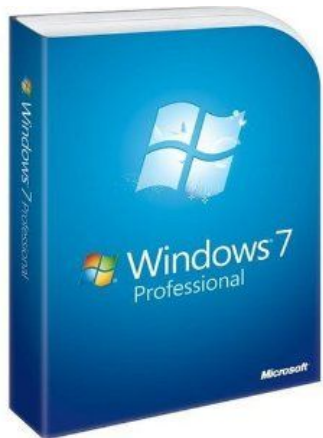The OS organizes and controls the hardware (CPU, RAM, I/O)

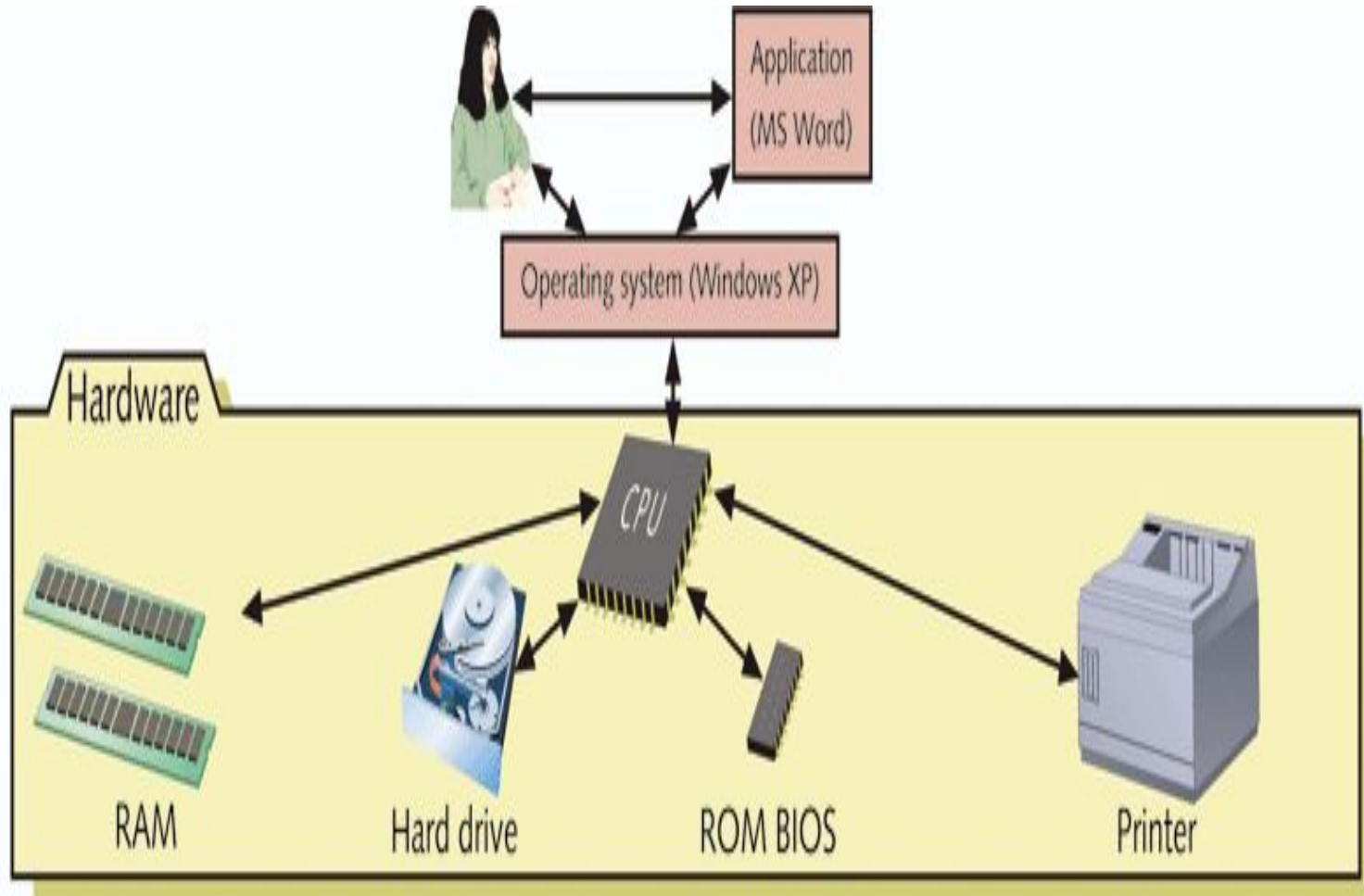Security

System interface

Application interface

OS acts as an interface between the application programs and the machine hardware.

Operating System Software

Examples: Microsoft Windows, Linux, Unix, Mac OS X, iOS, Android.

What is an operating system (OS)?

OS Functions

The main functions of operating systems are:

- Manages and Interacts with Computer Hardware
- Process the tasks
- Provides the User/ Computer Interface (CLI / GUI)
- Provides the Interface for Application Software
- Input / Output Operations
- Error Detection, Resource Allocation, Security and Protection

OS Services

Operating system services such as,

- Input / Output Operations ,Controlling and Allocating memory,
- Work as a Resource Allocator ,Prioritizing system requests, File System Manipulation, Error Detection,
- Controlling input and output devices, Communication
- Managing file systems, protection
- CPUs have this capability to use at least two modes: protected mode and supervisor mode.
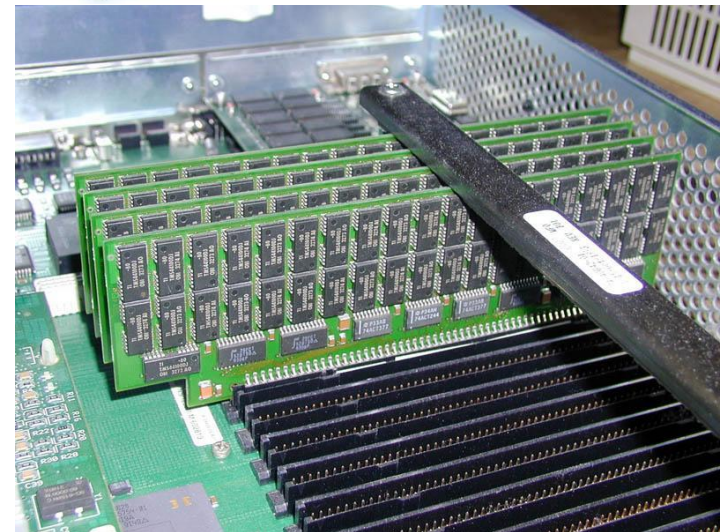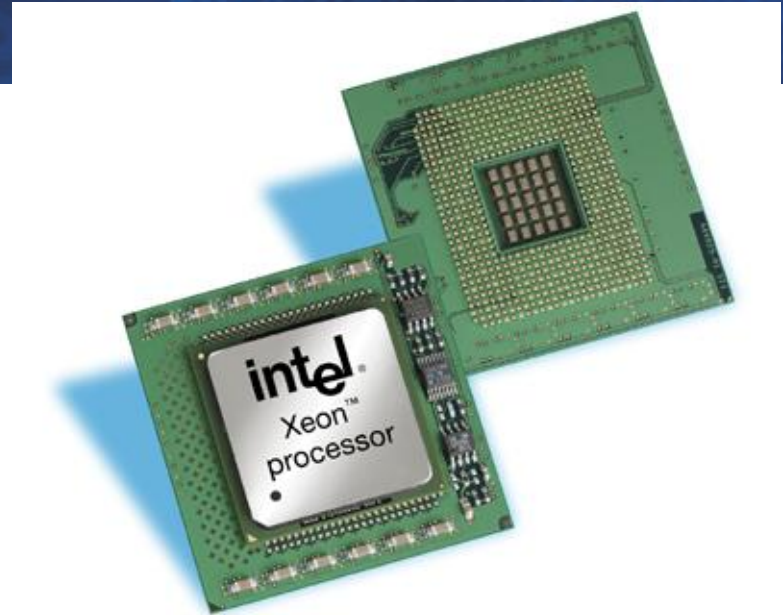
Manages the CPU

    - by CPU scheduling algorithms.

Manages RAM

    - What is <u>processing in RAM</u> - <u>Virtual memory.</u>

Provides the Interface for Application Software

     -Operating systems are designed and developed for a specific CPU or "family of CPUs"

To run more than one program at a time, you need a "boss" program that controls all the other programs.

*Such a boss program is called an operating system.*

OS/360 was used on most IBM mainframe computers beginning in 1966, including the computers that helped NASA put a man on the moon.

Microsoft's MS-DOS was one of the first Operating Systems for Personal Computers (PCs).

No mouse. Instead, you had to type a lot of special computer commands.

In the 1980s, operating systems were developed where you could move a mouse around and click on things instead of typing commands.
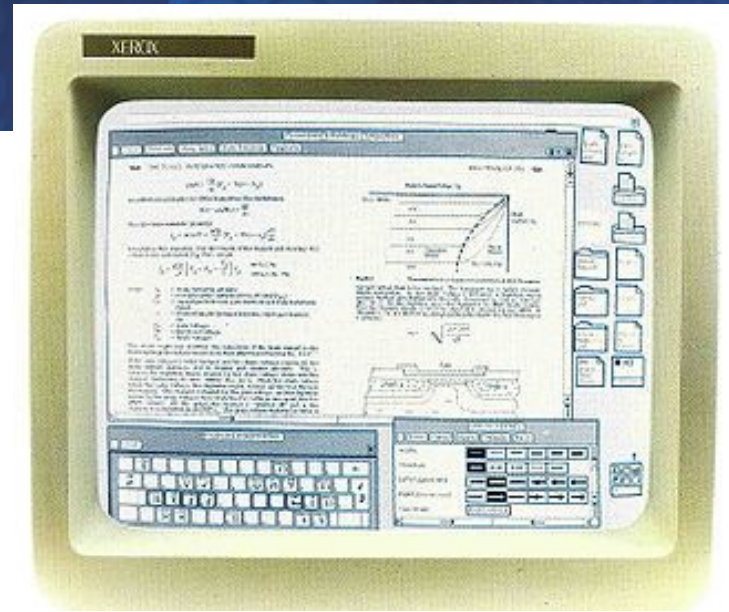
Digital Equipment Corporation created several operating systems for its 16-bit PDP-11 machines, the time-sharing operating systems, and the RSX-11 family of real-time operating systems.

Beginning in the mid-1970s, a new class of small computers came onto the marketplace. Featuring 8-bit processors along with rudimentary input and output interfaces and as much RAM as practical, these systems started out as kit-based hobbyist computers but soon evolved into an essential business tool.
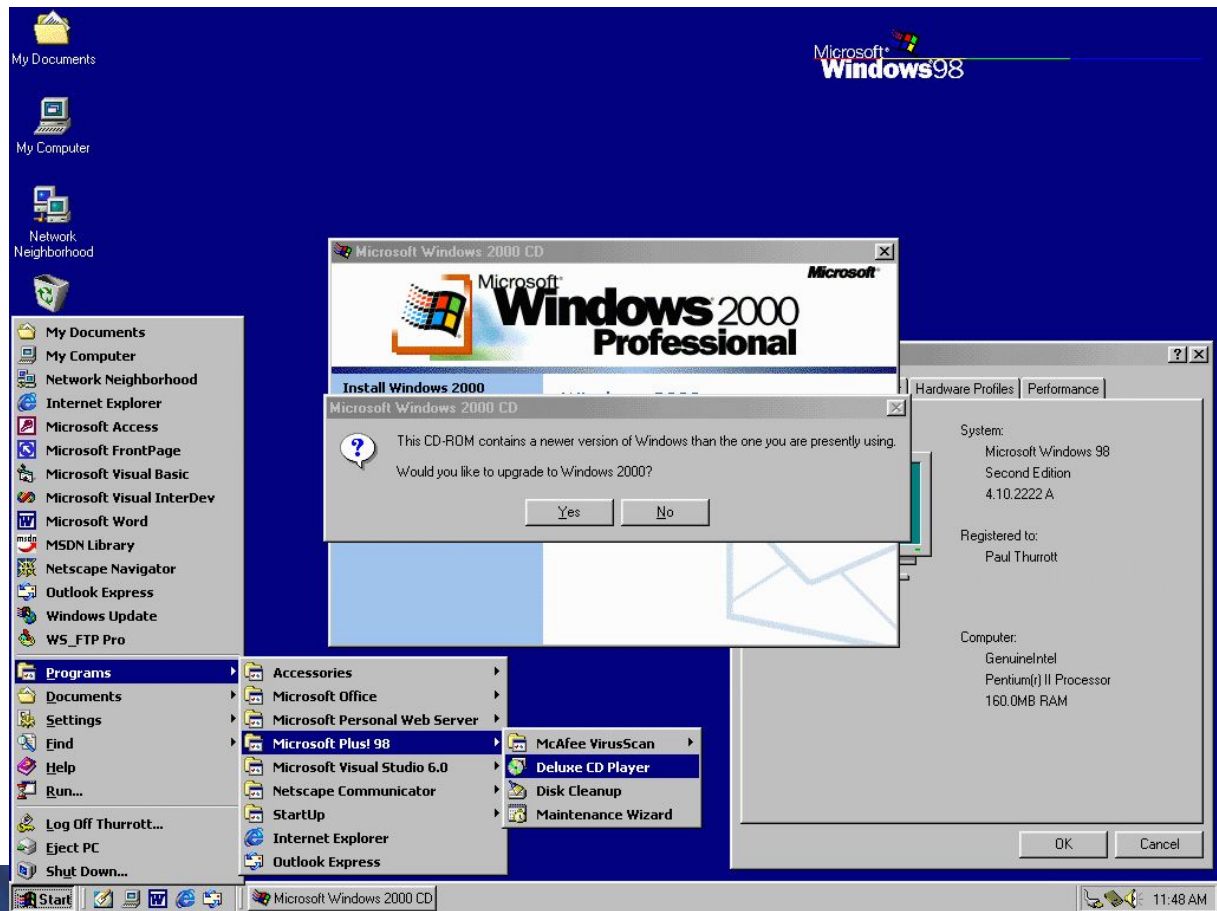
Windows 1.0 was released on November 20, 1985 as the first version of the Microsoft Windows line. It runs as a graphical, 16-bit mult-tasking shell on top of an existing MS-DOS installation
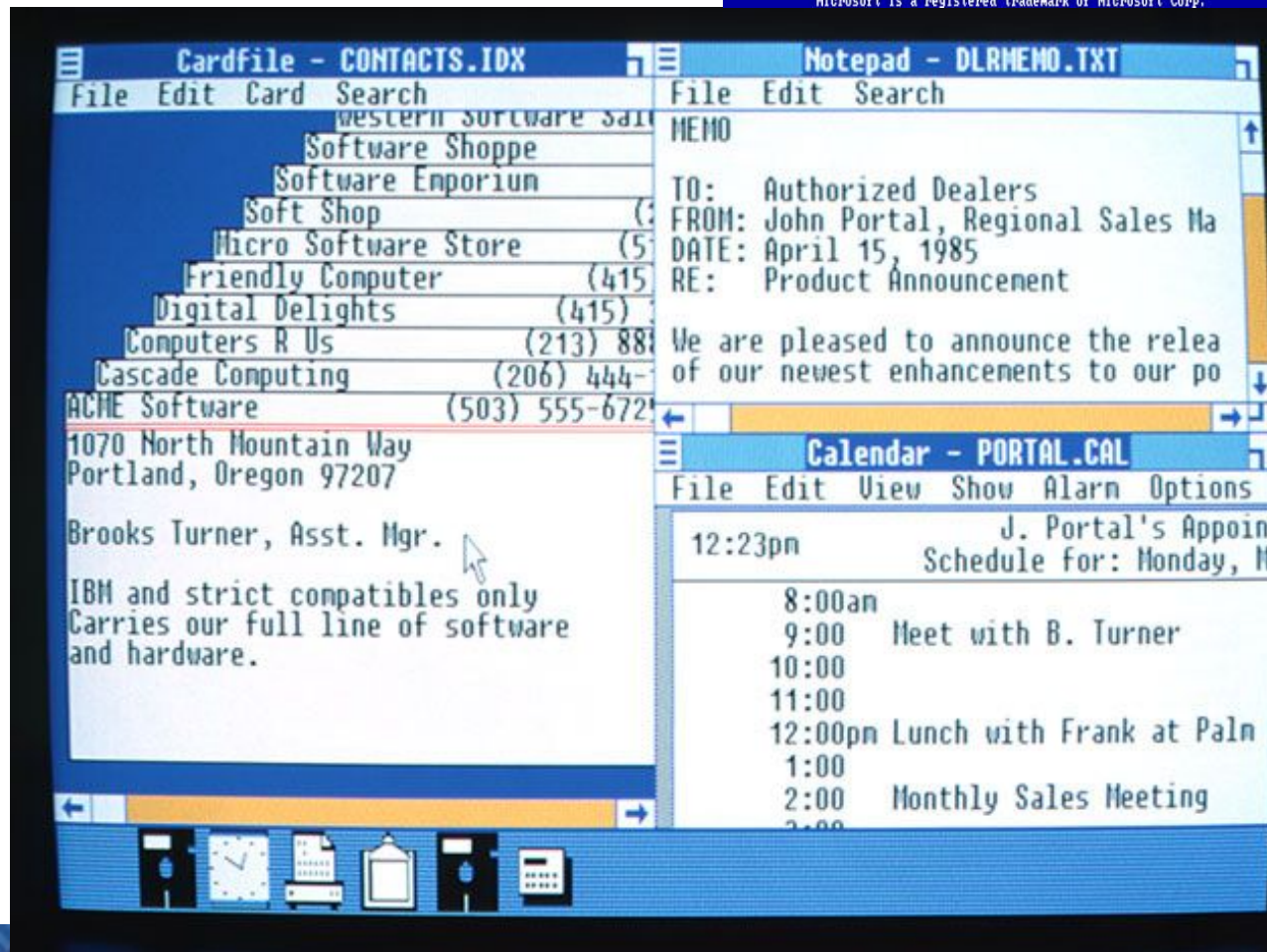
Windows 2000 is an operating system for use on both client and server computers. It was produced by Microsoft and released to manufacturing on December 15, 1999

Windows XP (codenamed Whistler) is a personal computer operating system produced by Microsoft

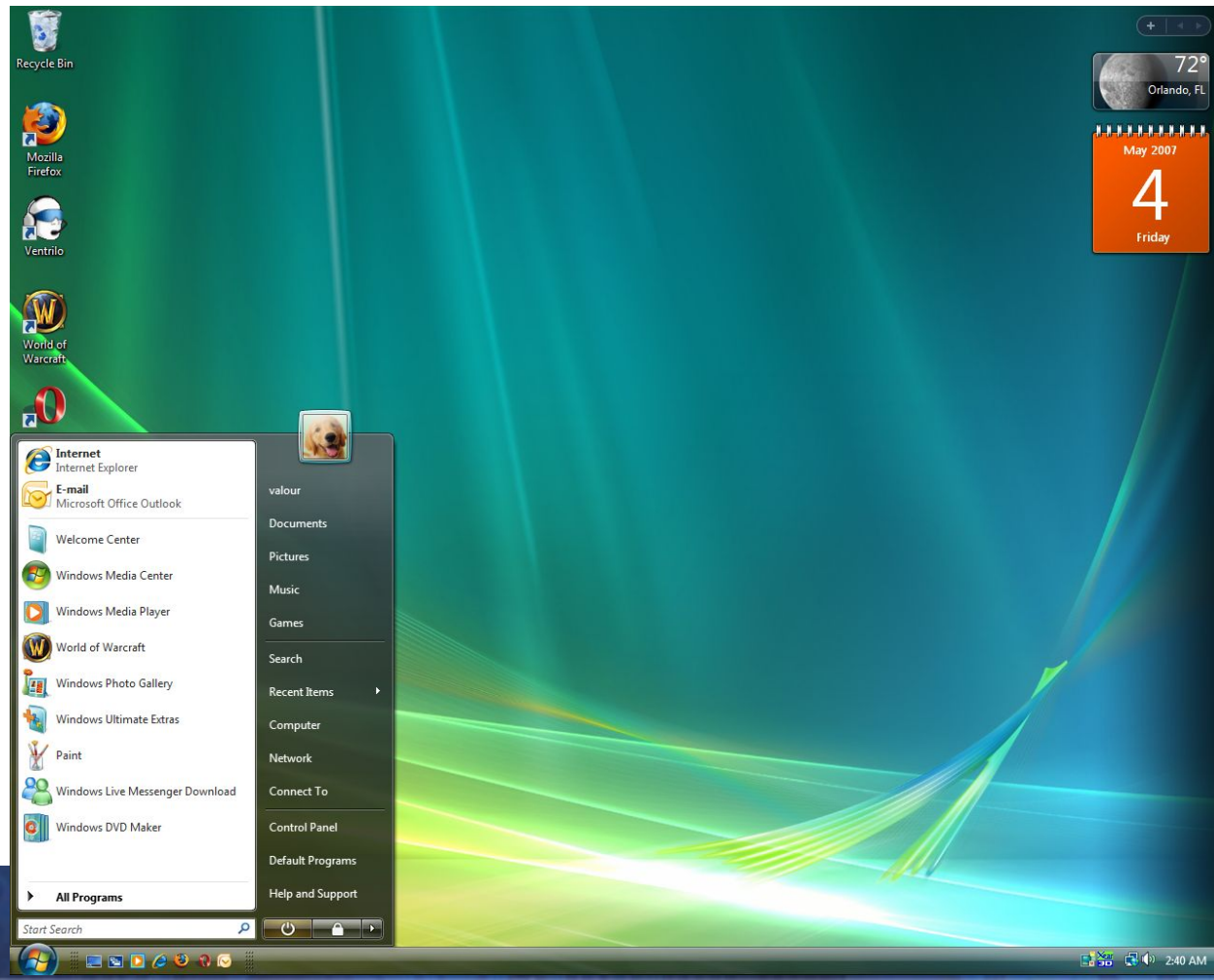*The operating system was released to manufacturing on August 24, 2001*

Windows Vista (codenamed is an operating system by Microsoft for use on personal computers, including home and business desktops, laptops, tablet PCs and media center PCs.
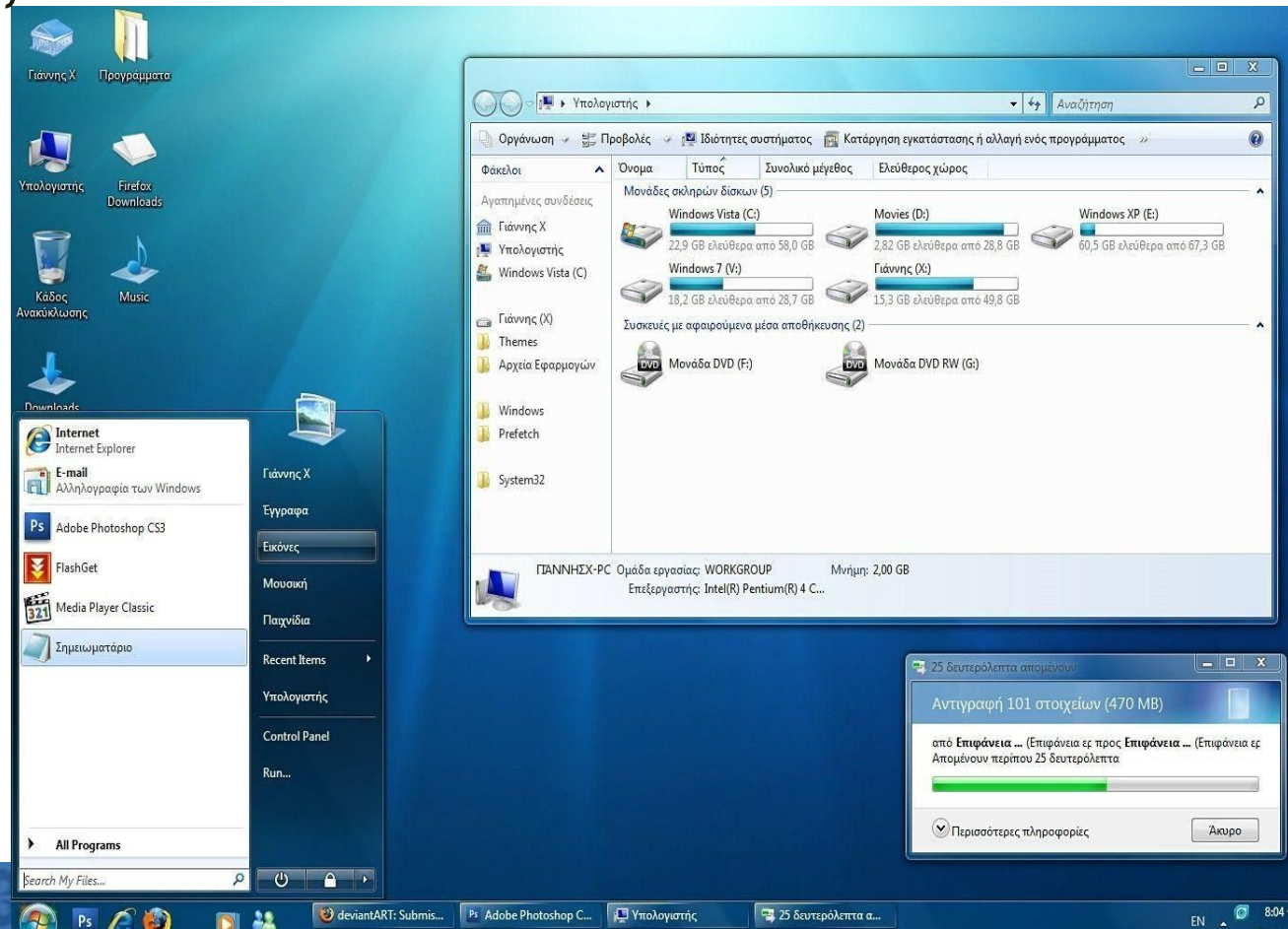
Development was completed on 8,November 2006

Windows 7 (codenamed Vienna, formerly Blackcomb) is a personal computer operating system developed by Microsoft.

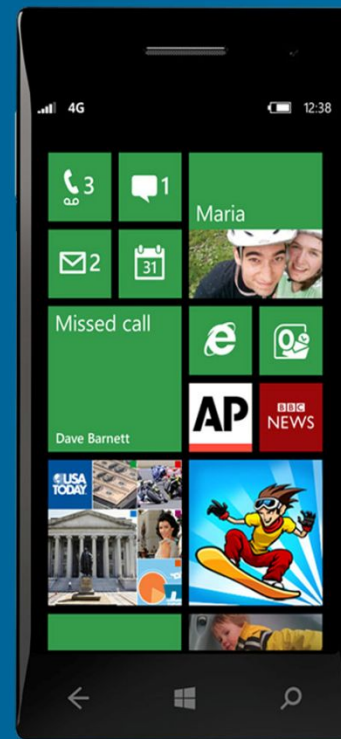*Windows 7 was released to manufacturing on 22 July 2009*

Windows 8 is a personal computer operating system developed by Microsoft as part of the Windows NT family of operating systems.

The operating system was released to manufacturing on 1 August 2012

Windows Phone 8 is the second generation of the Windows Phone mobile operating system from Microsoft. It was released *on October 29, 2012, and like its predecessor, it features a flat user interface based on Metro design language*

2012 new Windows Phone 8 review

Windows 10 is a personal computer operating system developed by Microsoft as part of the Windows NT family of operating systems. Officially unveiled in September 2014

Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touchscreen mobile

Initially developed by Android, Inc., which Google bought in 2005, Android was unveiled in 2007.

OS X
Mountain Lion

Mac OS X

iOS 6
The world's most advanced mobile operating system.

iOS is another type of operating system like ANDROID enables users to use smartphones The main credit of development of iOS' development goes to STEVE JOBS.

Q&A.

Have you any questions ???

Thank you for your attention !!!