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Assignment 1

Operating System Concepts

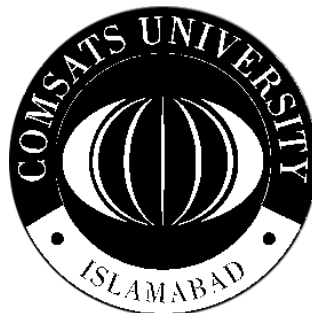
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History of Operating Systems

Before 1950:

The earliest computers were mainframes that lacked any form of operating system.

In 1950s:

- ✓ 1950: Mark III: "Calculators" (computers) then under construction.
- ✓ 1950: SEAC (Standards Eastern Automatic Computer)
- ✓ 1950: SWAC (Standards Western Automatic Computer)
- ✓ 1951: EDVAC (electronic discrete variable computer). The first computer to use magnetic tape.
- ✓ 1952: IBM introduces the IBM 701, the first computer in its 700 and 7000 series of large-scale machines
- ✓ 1953: Magnetic core memory developed.
- ✓ 1954: FORTRAN (Formula Translation), the first high-level programming language development
- ✓ 1956: The Bendix G-15 computer was introduced by the Bendix Corporation.
- ✓ 1957: FORTRAN development finished.
- ✓ 1958: Seton, a balanced ternary computer developed.
- ✓ 1959: The silicon integrated circuit developed by Robert Noyce.

In 1960s:

- ✓ 1961: The AN/UYK-1 (TRW-130) computer was designed with rounded edges.
- ✓ 1962: ATLAS is completed by the University of Manchester team.
- ✓ 1964: Launch of IBM System/360 – the first series of compatible computers.
- ✓ 1965: The first supercomputer, the Control Data CDC 6600, was developed.
- ✓ 1966: Hewlett-Packard entered the general-purpose computer business with its HP-2116A for computation.
- ✓ 1968: Intel founded by Robert Noyce and a few friends.
- ✓ 1969: Development of UNIX operating system begun.

In 1970s:

- ✓ 1970: AiResearch and American Microsystems develop the MP944.
- ✓ 1971: Kenbak-1 ships. This small, cheap (US\$750) personal computer.
- ✓ 1972: Atari founded by Nolan Bushnell and Ted Dabney.
- ✓ 1973: Microcomputer Micral N, created in 1973 by Frenchman François Gernelle.
- ✓ 1974: Motorola announces the MC6800 8-bit microprocessor.
- ✓ 1975: Olivetti released the personal computer Olivetti P6060.
- ✓ 1976: Cray-1 supercomputer was invented by Seymour Cray.
- ✓ 1978: Introduction of the 16-bit Intel 8086, the first x86 microprocessor.
- ✓ 1979: The 68000 Microprocessor launched by Motorola.

In 1980s:

- ✓ 1980: Sinclair ZX80 was released for under £100. Tandy released the TRS-80 Color Computer.
- ✓ 1981: Sinclair ZX81 was released, for a similar price to the ZX80.
- ✓ 1982: The Sinclair ZX Spectrum was announced.
- ✓ 1983: Apple introduced its Lisa.
- ✓ 1984: Apple Macintosh released, based on the 8 MHz version of the Motorola 68000 processor.
- ✓ 1985: Microsoft Windows launched.
- ✓ 1986: At EUSPICO '86 conference it was presented RIPAC, a microprocessor specialized for speech-recognition designed by CSELT, Elsas and manufactured by SGS. It was used for telephone dialogue-based services in Italy.
- ✓ 1987: The 8514/A introduced by IBM.
- ✓ 1988: EISA Bus standard introduced.
- ✓ 1989: Apple Computer Macintosh IIx released based on a faster version of the 68030.

In 1990s:

- ✓ 1990: Multimedia PC (MPC) Level 1 specification published by a council of companies including Microsoft and Creative Labs.
- ✓ 1991: The Linux kernel is born with the following post to the Usenet Newsgroup comp. OS. Minix by Linus Torvalds.
- ✓ 1992: IBM ThinkPad 700C laptop created.
- ✓ 1993: MPC Level 2 specification introduced (see November 1990).
- ✓ 1994: Linus Torvalds released version 1.0 of the Linux kernel.
- ✓ 1995: Be Inc. launch the BeBox, featuring two PowerPC 603 processors running at 66 MHz, and running their new operating system BeOS.
- ✓ 1996: Toshiba released the Libretto sub-notebook.
- ✓ 1997: IBM's Deep Blue became the first computer to beat a reigning World Chess Champion, Garry Kasparov, in a full chess match.
- ✓ 1998: Compaq Computer Corporation announces pending acquisition of Digital Equipment Corporation for \$9.6 billion.
- ✓ 1999: Linux Kernel 2.2.0 is released.

In 2000s:

- ✓ 2000: The Ericsson R380, the first phone running Symbian OS was released.
- ✓ 2001: Microsoft released Windows XP, based on Windows 2000 and Windows NT kernel. Windows XP introduces a heavily redesigned GUI and brings the NT kernel to the consumer market.
- ✓ 2002: RIM (now BlackBerry Ltd) released the first BlackBerry smartphone.
- ✓ 2003: Nvidia releases GeForce FX, a family of DirectX 9.0-compatible 3D cards with extensive support for pixel and vertex shaders.
- ✓ 2004: The first release of the Ubuntu Linux distribution.
- ✓ 2005: Microsoft releases the Xbox 360.

- ✓ 2006: AmigaOS 4 was released by Hyperion Entertainment (VOF) under license from Amiga, Inc. for AmigaOne registered users.
- ✓ 2007: Apple launches Mac OS X Leopard (v10.5)
- ✓ 2008: The HTC Dream (T-Mobile G1), the first commercially available device to run the Android operating system, was released.
- ✓ 2009: Microsoft releases Windows 7.

In 2010s:

- ✓ 2010: Apple releases the iPhone 4.
- ✓ 2011: Intel announces the commercialization of 3D transistors,[5] a variant of the FinFET.
- ✓ 2012: Raspberry Pi, a bare-bones, low-cost credit-card sized computer.
- ✓ 2013: Sony releases the PlayStation 4 in Europe.[18]
- ✓ 2014: Intel unveiled its first eight-core desktop processor, the Intel Core i7-5960X.
- ✓ 2015: Microsoft releases the operating system Windows 10.
- ✓ 2016: Fixstars Solutions releases the world's first 13 TB SSD.
- ✓ 2017: Nintendo releases the hybrid gaming console Nintendo Switch.
- ✓ 2019: Lexar announces the first SD card in which could store 1 terabyte.

Generations of Operating System

The First Generation (1945 - 1955): Vacuum Tubes and Plugboards

Virtual computer systems have been now not constructed until the second one international struggle. calculating engines with mechanical relays had been built at that time. but the mechanical relays were very slow and have been later replaced with vacuum tubes. those machines were large however were nevertheless very sluggish. these early computer systems were designed, built and maintained using a single group of people. programming languages had been unknown and there were no working systems so all the programming was performed in machine language.

The Second Generation (1955 - 1965): Transistors and Batch Systems

Transistors caused the improvement of the computer structures that might be manufactured and bought to paying customers. those machines have been referred to as mainframes and have been locked in air-conditioned laptop rooms with staff to function them. the batch machine became brought to reduce the wasted time inside the pc. a tray completes of jobs turned into collected within the input room and study into the magnetic tape. after that, the tape changed into rewind and established on a tape force. then the batch running gadget became loaded wherein examine the primary activity from the tape and ran it. the output changed into written on the second tape. after the entire batch turned into performed, the input and output tapes had been removed and the output tape becomes printed.

The Third Generation (1965 - 1980): Integrated Circuits and Multiprogramming

till the 1960s, there have been two varieties of laptop systems i.e. the medical and the economic computers. these were blended with the aid of IBM within the machine/360. this used integrated circuits and furnished a prime price and performance advantage over the second-generation structures. the third-technology working structures also brought multiprogramming. this meant that the processor became not idle whilst a process became finishing its i/o operation. some other task turned into scheduled on the processor so that its time would no longer be wasted.

The Fourth Generation (1980 - Present): Personal Computers

non-public computers had been smooth to create with the improvement of massive-scale included circuits. these were chips containing thousands of transistors on a square centimeter of silicon. due to those, microcomputers had been lots less expensive than minicomputers and that made it feasible for a single man or woman to own one in every one of them. the arrival of private computer systems also caused the growth of networks. this created network operating systems and allotted running structures. the customers have been aware of a community while the usage of a network working system and could log in to remote machines and replica documents from one machine to another.

Classification of Operating System

Operating system classification depends on:

Purpose, Task processing mode, Way of user-system interaction, means of multi-processing, Architecture and on this basis, operating system can be broadly classified as:

1. On the Basis of Purpose:

- ✓ Time Sharing Operating System
- ✓ Real Time Operating System
- ✓ Distributed Operating System

2. On the Basis of Processing:

- ✓ Single Processor System
- ✓ Multi-Processor System

3. On the Basis of Tasking:

- ✓ Single Tasking
- ✓ Multi-Tasking

4. On the Basis of Number Of Users:

- ✓ Single User
- ✓ Multi User