

History of Computer Applications

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An overview of how computers moved from simple calculators to the versatile tools that shape modern life.

1. Foundations (1940-1950s)

Period	Milestones	Typical Applications
Early electronic computers (ENIAC, 1946)	- Massive vacuum-tube machines - Programmed by rewiring or plug-boards	• Ballistics calculations for the U.S. Army • Basic scientific tables
Stored-program concept (von Neumann architecture, 1945)	- Data and instructions share the same memory - Made software development feasible	• General-purpose numerical computation • Early cryptographic work
First high-level languages (FORTRAN 1957, COBOL 1959)	- Abstracted hardware details - Enabled non-engineers to write programs	• Engineering simulations (FORTRAN) • Business data processing (COBOL)

Key Takeaway: The shift from hardware-centric programming to stored-program computers and high-level languages opened the door for applications beyond pure math.

2. The Rise of Business Computing (1960-1970s)

Decade	Major Developments	Representative Applications
1960s	- Mainframe dominance (IBM System/360) - Introduction of magnetic tape & disks	• Payroll, inventory, and accounting systems (e.g., IBM's "Business System") • Airline reservation (American Airlines SABRE)

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Late 1960s – early 1970s	- Time-sharing OS (CTSS, MULTICS) - ? multiple users on one machine	• Interactive data entry and reporting • Early computer-aided design (CAD)
1970s	- Minicomputers (DEC PDP-11) make computing affordable for smaller firms - Early relational database concepts (E.F. Codd, 1970)	• Manufacturing control systems (MFG-CAD) • Early ERP-style modules (inventory, order entry)

Impact: Computers became indispensable for routine business tasks, establishing the concept of *software as a service* within an organization.

3. Personal Computing & Desktop Applications (1970s-1990s)

Era	Hardware / OS	Signature Applications
1970s	• Altair 8800, Apple I • CP/M OS	• BASIC interpreters (learning & hobbyist programming)
Early 1980s	• IBM PC (1981), Apple Macintosh (1984) • MS-DOS, early Windows, Mac OS	• Word processors (WordStar, Microsoft Word) • Spreadsheets (VisiCalc, Lotus 1-2-3, Excel) • Desktop publishing (Aldus PageMaker)
Late 1980s – early 1990s	• Graphical user interfaces mature (Windows 3.0, Mac System 7)	• Desktop CAD (AutoCAD) • Early multimedia (Adobe Photoshop, video editing) • Integrated office suites (Microsoft Office)
Mid-1990s	• Windows 95, Internet Explorer	• First wave of consumer web browsers (Netscape)

Significance: The PC democratized computing, turning software into a mass-market product and spawning entire industries (gaming, publishing, graphic design).

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4. Networked & Internet-Based Applications (1990-2000s)

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