The History Of Computers: Computing with the aid of machines or devices began well before the use of electricity. The following timeline traces the evolution of computers and related devices, highlighting major discoveries and events. (Please suggest additions and updates to this timeline: your input is most welcome.) There are several timelines on the web. Try http://www.accad.ohio-state.edu/~waynec/history/timeline.html

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| ca 500 BC | The bead-and-wire abacus, used for adding and subtracting large numbers, is invented in Egypt. |
| ca 800 | Chinese introduce the use of the number zero. |
| 1474 | The first patent statute enacted in Venice. |
| ca 1500 | The quadrant, an astronomical calculation tool, becomes widely used in Europe. |
| 1502 | The first watch is invented. |
| 1608 | The telescope is invented by Dutch spectacle maker Hans Lippershey. |
| 1617 | Scotland's John Napier introduces a system of multiplying by adding numbers and dividing by subtracting. The system, which was called "Napier's Bones," was a mechanical numbering device made of horn, bone, or ivory. This device evolved into the logarithmic scale-based slide-rule. |
| 1622 | William Oughired of England invents the circular slide rule. |
| 1624 | Professor Henry Briggs of England publishes the first set of modern logarithms, which contains 1,161 errors. |
| 1834 | Charles Babbage develops an “analytical engine” which can read data in punched cards. This device is programmed by Ada Tennyson (Lord Tennyson's wife). |
| 1628 | Dutchman Adrian Vlacq fills in the missing pieces to Henry Briggs' work by publishing the first complete set of modern logarithms. |
| 1643 | Blaise Pascal conceives an arithmetic machine, with wheels labeled with the numerals 0-9 on perimeter, and a tab on each wheel to carry one over to the next wheel (units to tens to hundreds, etc.). . The machine also is used to calculate the exchange rate of national currencies. |
| 1666 | Gaspard Schott of Germany creates an Organum Mathematicum, a mathematical mechanical aid that expanded upon "Napier's Bones." |
| 1672 | England's Samuel Morland publishes "The Description and Use of Two Arithmetic Instruments," which describes adding machines and a mechanical version of "Napier's Bones." |
| 1674 | Gottfried Wilhelm Leibnitz of Germany creates a machine that can add, subtract, multiply, and divide automatically. |
| 1694 | Leibnitz modifies Pascal's machine to include multipland divide operations; the design of this calculator remains unchanged for 150 years. |
| 1780 | American Benjamin Franklin discovers electricity. Frenchman Joseph-Marie Jacquard completes his fully automated loom, which is programmed by punched cards. |
| 1820 | Thomas de Colmar creates the first reliable, useful, commercially successful calculating machine. Over the next 60 years, more than 1,500 of these machines are sold. |
| 1822 | England's Charles Babbage begins work on the Difference Engine, which is a device used for producing calculating tablets. |
| 1830 | The telegraph is invented. |
| 1833 | All work on the Difference Engine ends, after a dispute between Charles Babbage and his partner Joseph Clement. Babbage begins designing the Analytical Engine, a device that he said would be able "to solve any equation." He dies before the machine was completed. |
| 1850 | George Boole, develops a logic notation combined with mathematics, in which logical (true-false) states are equivalent to binary (1,0) states. Boolean algebra is born (e.g. if A and B then C, if A not B then D; not-and, exclusive or, etc.). |
| 1853 | The Swedish father-and-son team of Georg and Edvard Scheutz completes construction of an operational Difference Engine modeled after Charles Babbage's plans. |
| 1866 | The first successful transatlantic cable is laid from Ireland to Newfoundland. |
| 1867 | The typewriter is invented in the United States. |
| 1875 | A company called Tanaka Seizo-sho is established in Japan. The company, which manufactures telegraphic equipment, later merges with another company, Toshiba, a worldwide manufacturer of computer products.<br>The first properly constructed variable toothed gear - which will result in a breakthrough in the calculating machine industry - is made. |
| 1876 | Alexander Graham Bell is granted a patent for his telephone. |
| 1877 | The microphone is invented in the United States. |
| 1883 | Thomas Edison discovers the Edison effect, in which electric current flows through a vacuum. |

1884 American Dorr E. Felt begins work on the Comptometer, a calculator that would tally results as numbers were entered.

1886 Ottmar Mergenthaler invents the Linotype machine, which produces complete lines of metal type.

1888 William Burroughs patents a printing adding machine.

1890 American Herman Hollerith's method of using punched cards to tabulate data is used in the U.S. census of 1890. His machine is an electromechanical device, in which switch closure through holes in a punched card encoded using 80 columns,provides electrical continuity of the circuit through a mercury pool (!).

1891 Henri Genaille's and Edouard Lucas' rulers, similar to "Napier's Bones," are marketed.

1896 Herman Hollerith starts the Tabulating Machine Co., essentially the world's first computer company, which would eventually become International Business Machines (IBM).

1901 The first radio message is sent across the Atlantic Ocean.

1903 Yugoslav-American Nikola Tesla, an employee of Thomas Edison, patents the electrical logic circuits that become crucial to addition, subtraction, and multiplication in later machines.

1911 Four New York manufacturing companies merge to form the Computing- Tabulating Recording Co. (among them, Herman Hollerith's Tabulating Machine Co.).

1920 Czech playwright Karel Capek coins the term "robot" to describe mechanical workers. Radio broadcasting begins in Pittsburgh, Pa., at station KDKA.

1921 Radio Shack opens its first store in Boston.

1924 The Computing-Tabulating-Recording Co. changes its name to International Business Machines (IBM).

1925 MIT's Vannevar Bush creates the differential analyzer, a large-scale analog calculator that can do many kinds of scientific computations.

1927 The television is publicly demonstrated at Bell Telephone Laboratories.

1928 Paul V. Galvin founds the Galvin Manufacturing Corp. in Chicago. The company produces battery eliminators, which allow radios to run on normal household current.

L. J. Comrie uses punched cards to calculate the motions of the moon.

1929 Sales of radio sets reach $900 million, up from $60 million in 1922.

1930 Vannevar Bush's differential analyzer is introduced as the first serious attempt to design a computer that can do many kinds of scientific computations; it is the herald of the modern computer age.

1932 Cambridge physics professor Dr. C. E. Wynn Williams is the first to use large-scale electronic counters for constructing a binary counter to keep track of events in experiments.

1934 The idea that an automatic calculator would only need a control program, a memory, and an arithmetic unit is advanced by Konrad Zuse, a famous German civil engineer.

The Communications Act of 1934 creates the Federal Communications Commission (FCC), the agency that will regulate interstate and international communications, including telecommunications.

1936 Alan Turing publishes his landmark paper "On Computable Numbers," in which he outlines what is basically the modern computer.

German Konrad Zuse, who sets up a workshop in his parents' apartment, applies for a patent on his mechanical memory, a simple device based upon pins that can be pushed from one side of a slot to another, denoting binary one or zero.

1937 Michigan-born Claude Shannon writes an influential paper that sets the stage for digital computers, linking symbolic logic and electrical circuits.

1938 Konrad Zuse of Germany creates the Z1, one of the first bmary digital computers and a machme that could be controlled through a punch tape.

1939 George Stibitz at Bell Telephone Laboratories completes the Complex Number Calculator, which uses Boolean logic to add, subtract, multiply, and divide complex numbers and also provides a foundation for digital computers.

The first Radio Shack catalog is published.

Iowa State College's John Vincent Atanasoff and Clifford Berry have a prototype of the binary-based ABC (Atanasoff-Berry Computer), which is often considered the first automatic digital computer.

Bill Hewlett and David Packard found Hewlett-Packard and produce their first product - a resistance-capacitance audio oscillator that was purchased by Disney to make the sound track for the film "Fantasia." The company would later become famous for its profitakle line of desktop printers.

Analog computers dominate computing during the war years (1939-44): these employ electronic tube-type circuits,and were used for calculating shell trajectories. Analog computers use operational amplifiers (op-amps) with very high gain, to integrate, differentiate, exponentiate and take log functions. In this type of computer, numbers are coded as voltages; the output goes to a pen plotter to give graphic solutions: the computers are useful for solving differential equations. A few modern hybrid computers existed until the 1970's (EAI, Inc.)

1940 George Stibitz's Complex Number Calculator is the first machine to be used from a remote location, when it is demonstrated via a remote terminal at the American Mathematical Association Meeting.
The National Defense Research Committee is established to organize scientists and engineers for World War II.
Motorola produces a "Handy-Talkie," the first handheld ~ two-way radio, for the U.S. Army Signal Corps.

1941 German Konrad Zuse finishes the Z3, a fully operational calculating machine with automatic control.

1942 John Mauchly, a professor of physics at Ursinus College in Pennsylvania, writes a short paper entitled "The Use of High Speed Vacuum Tube Devices for Calculating."

1943 J. Presper Eckert and John W. Mauchly begin construction of the Electronic Numerical Integrator and Computer (ENIAC), the first general-purpose electronic digital calculator. The ENIAC is considered by some to be the first electronic computer and will be used to calculate ballistic firing tables during World War II.
The Colossus, which was a programmable, digital machine also considered by some to be the first electronic computer, is operational in England.
In England, Dr. C. E. Wynn-Williams agrees to design a wartime code-breaking machine..
Motorola's Dan Noble designs a "WalkieTalkie," the first portable FM two-way radio.
An analog flight simulator project called Project 'Whirlwind" is developed at MIT.

1944 The relay-based Harvard-IBM MARK I, a program-controlled, large-scale calculating machine built by a team led by Howard Aiken, goes to work during World War II providing vital calculations for the U.S. Navy. Grace Hopper becomes its first programmer. Parts of the Mark I now reside at the Smithsonian in Washington, (5 tons of it, anyway), with its 3,300 relay memory.
Several copies of the Colossus are installed at London's Bletchley Park, five days before the Allies land at Normandy. Alan Turing will lead the team that uses the machine to crack top-secret German codes.

1945 Hungarian John von Neumann participates in the creation of the EDVAC (Electronic Discrete Variable Automatic Computer), a computer capable of storing programs internally and using electronic speed. Von Neumann is often credited with the concept of storing programs.
Atlantic Monthly publishes Vannevar Bush's landmark essay "As We May Think," which describes a desk that gives instant access to documents, books, and periodicals stored in microfilm.
While working on the construction of the MARK II, Grace Hopper discovers a large moth that has made a relay fail. She tapes the moth in the log book with a note that says, "First actual case of bug being found."
The flight simulator "Project Whirlwind," started in 1943, is switched from analog to digital electronics.

1946 J. Presper Eckert and John Mauchly unveil ENIAC (Electronic Numerical Integrator And Calculator) at the University of Pennsylvania's Moore School of Electrical Engineering. The computer's ; "programs" were hardwired in via patchboards. The computer occupied 3,000 cubic feet, consumed 140 KW of power, had a memory of 16 KBits (=1,000 words), contained 7,000 discrete resistors, 10,000 capacitors, 18,000 tubes, and weighed over 30 tons. It had a 7.5 minute MTBF (mean time between failures). Later the same year, Eckert and Mauchly leave the Moore School to found their own firm, Electronic Control Co., to design the UNIVAC.
Alan Turing, a code-breaking specialist during World War II, designs the Automatic Computing Engine (ACE), and Jim Wilkinson is I assigned to help him at the National Physical Laboratory.
John von Neumann pioneers a computer project at the Institute for Advanced Study at Princeton, attempting to develop a digital computer employing the stored program concept. Two essential contributions to computing principles now taken for granted, but innovative break-throughsby von Neumann: (1) write program for computer in same form as data to be processed, store in memory along with data; and (2) make computer automatic: start execution, allow it to proceed on its own (run a program), and cycle through program. This machine's design included storage registers, logic circuits (adders, multipliers, comparators), a clock, and instruction decoder circuitry.
The Royal Society awards a grant to found a Computer Laboratory at Manchester University, and Tom Kilburn and Frederic Williams join the project to explore the possibilities of creating an electronic, digital computer. The . two will build the SSEM (small-scale electronic machine).
F. C. Williams applies for a patent on his cathode-ray tube (CRT) storing device, an original form of random-access memory (RAM).
Based upon the ideas behind the EDVAC, construction of the Cambridge Machine, also known as the Electronic Delay Storage Automatic Calculator (EDSAC), is begun.

1947 John Bardeen, Walter Brattain, and William Shockley invent the trans-resistor, or transistor, at AT&T Bell Telephone Laboratories. The transistor has the same capabilities as a vacuum tube but is faster, breaks less often, uses less power, and generates less heat.

The Harvard MARK II, an expensive machine that is considerably faster than the MARK I, goes into operation, again under the direction of Howard Aiken.
Northrup Aviation completes contract agreement with the Electronic Control Company for BINAC (BINary Automatic Computer), which among other things was the first computer to use magnetic tape as a secondary memory.
F. C. Williams' memory system, which was patented in 1946, is now in working order.
Norbert Wiener coins the term "cybernetics," which refers to "the science of control and communication in the animal and the machine." This new science combines knowledge from neurology, and physiological psychology; where the mind is involved with the orderly patterning of information. The concept suggests that a computer could be designed like like a brain, with afferents and efferents.

1948 Claude Shannon writes an influential paper founding information theory, which is based upon the idea of the 1 bit being the fundamental unit of data.
The prototype of the SSEM (small-scale electronic machine) is in operation at Manchester University.
Alan Turing joins the SSEM project, which some consider to be the first electronic computer.
IBM builds the Selective Sequence Electronic Calculator (SSEC), a computer with 12,000 tubes.
Andrew Donald Booth realizes that one of the major problems with the computers designed so far is the lack of storage. He then creates magnetic drum memory, which is two inches long and two inches wide and capable of holding 10 bits per inch.
An agreement is made between EckertMauchly Computer Corp., previously known as the Electronic Control Co., and the U.S. Census Bureau for the production of the UNIVersal Automatic Computer (UNIVAC). The computer will be used to aid the Bureau with its large amounts of statistical gathering.
The National Bureau of Standards, impatient for commercial computers to appear, begins work on the Standards Eastern Automatic Computer (SEAC).
The 604 multiplying punch, based upon vacuum tube technology, is produced by IBM.

1949 The EDSAC, built by Maurice Wilkes at Cambridge University, makes its first run. Considered by some to be the first electronic computer, the EDSAC is personified by a stored memory.
The National Bureau of Standards Institute for Numerical Analysis starts on the SEAC's counterpart, the Standards Western Automatic Computer (SWAC).
Pilot ACE, a pilot project for the rapid and complex Automatic Computer Engine, is going through production at the National Physical Laboratory in Teddington, England. The design of ACE is largely credited to Alan Turing.
Claude Shannon builds the first machine that plays chess at the Massachusetts Institute of Technology.
The Harvard-MARK III, the first of the MARK machines to use an internally stored program and indirect addressing, goes into operation, once again under the direction of Howard Aiken.
Jay Forrester uses iron cores for the main memory in Whirlwind. This magnetic form of memory will be used practically in 1952 and '53.
Northrup Aviation receives BINAC from Eckert-Mauchly Computer Corp. BINAC was the first computer to operate in America; however, some say the machine never worked the way it was supposed to.
The SSEM at Manchester University is fully operational.

1950 Hideo Yamachito leads a team that will create Japan's first large electronic computer, the Tokyo Automatic Calculator (TAC).
The SEAC (Standards Eastern Automatic Computer) is delivered to and goes into operation at the National Bureau of Standards. Its memory is capable of storing 512 45-bit words.
The National Physical Laboratory begins operating the Pilot ACE.
The Standards Western Automatic Computer (SWAC) is now operational. The western complement to the SEAC, the SWAC is now the fastest computer in the world.
The enhanced Z4 is installed by Konrad Zuse at the Federal Polytechnical Institute (ETH) in Zurich. The Z4 can simultaneously perform an operation and read the next two in line.
Alan Turing, using the Interrogator machine, puts a computer and a human in a room to answer questions. According to his theory, known as the Turing Test, if the computer can pass for a human in its answers, it proves that the computer can think. Still today, no computer has passed this test.

1951 Whirlwind, which is used for problems requiring real-time work, is in operation at the U.S. Navy's Office of Research and Invention.
An Wang of China founds Wang Laboratories Inc. in Boston. The company would later become a major computer manufacturer.
The first business computer, a Lyons Electronic Office (LEO), is completed by T. Raymond Thompson, John Simmons, and their team at the Lyons Co.

The first commercial computer, dubbed the "First Ferranti MARK I," is now functional at Manchester University.
The first computer sold commercially in the United States, the UNIVAC, is installed at the U.S. Census Bureau. It's capable of performing 8,333 additions or 555 multiplications a second.
The Institute for Advanced Study (IAS) machine is now in limited operation. The initial test for the IAS involves calculations integral to the design of the hydrogen bomb.

1952 The Harvard-MARK IV, the last of Howard Aiken's machines and the one with an increased speed because of its ferrite magnetic cores, is in operation at Harvard University.
Andrew Donald Booth and his father sell fairly reliable working magnetic drum memories for use in computers.
MANIAC and ORDVAC, two versions of the Institute for Advanced Study (IAS) machine, are now functional.
With only 7% of the votes in, the UNIVAC correctly predicts that Dwight D. Eisenhower will win the presidential race, leading to a widespread realization of the possibilities of computers.
The Ferranti MARK I, also known as the Manchester Electronic Computer MARK II (a copy of the original MARK I, not an improvement), is installed at the University of Toronto.
IBM World Headquarters receives the first IBM 701. The machine has 256 40-bit words of main memory and can perform 2,200 multiplications per second.
The Moore School finally has a finished version of the EDVAC, with a clock speed of one megahertz

1953 A magnetic memory smaller and faster than existing vacuum tube memories is built at MIT.
The 701 becomes available to the scientific community. A total of 19 are produced and sold.

1954 IBM produces and markets the 650, a useful workhorse computer. The company produces more than 1,800 in an 8-year span.
IBM publishes the first version of FORTRAN (formula translator) and begins work on FORTRAN II.
The influential FORTRAN, created by a team led by John Backus, will be considered the first true high-level programming language.
DEUCE, a flight simulation package, is constructed by English Electric.
Texas Instruments physicist Gordon Teal perfects a way of making transistors out of inexpensive silicon instead of more costly germanium.
Dartmouth College's John McCarthy coins the term "artificial intelligence."
Bell Labs introduces its first transistor computer. Transistors are faster, smaller, and create less heat than traditional vacuum tubes, making these computers much more efficient.
The ENIAC is turned off for the last time. It's estimated to have done more arithmetic than the entire human race had done prior to 1945.

1956 Bell Labs scientists John Bardeen, Walter Brattain, and William Shockley share the Nobel Prize in physics for inventing the transistor.
The Livermore Atomic Research Computer (LARC) is under development at UNIVAC, a company that competes with IBM. The LARC will be the last major effort to create a machine based upon the decimal-only memory storage concept.
IBM's 305 RAMAC, the first computer with a hard disk drive, is shipped.
Manchester University begins the ATLAS computer project, a design for an efficient supercomputer capable of primitive multitasking.

1957 Kenneth Olsen founds Digital Equipment Corp., which will later become a major network computer manufacturer on par with the likes of IBM.
The GPS (General Problem Solver) program is written by Allen Newell, H. A. Simon, and J. C. Shawl This ambitious program is made to potentially solve al! problems.
John McCarthy creates the LISP programming language, which is said to represent commonsense knowledge and becomes associated with the growing field of artificial intelligence.
Philco delivers the TRANSAC S-2000, one of the first transistorized computers.
Russia launches the first artificial satellite, Sputnik.

1958 Inventors at Fairchild Semiconductor and Texas Instruments are simultaneously creating the integrated circuit, which combines the necessary components of a computer into one unit, thereby saving space, doing away with the need for wiring components together, and increasing reliability.
The National Advisory Committee for Aeronautics is renamed the National Aeronautics and Space Administration (NASA).
President Eisenhower's Christmas address is the first voice transmission from a satellite.

1959 The Harvard-MARK I is turned off for the last time.
Most of the manufacturers of scientific machines have adopted the successful FORTRAN language rather than be faced with trying to produce a new language that is as good.
Motorola produces the two-way, fully transistorized mobile radio.

1960 By this year most large universities own a computer. Languages available include FORTRAN, ALGOL and COBOL. Solid state hardware, transistors are now replacing tubes (the IBM 704 evolves into functionally equivalent 7040). Program entry is done off line via punched card decks.
Digital Equipment Corporation unveils the PDP-1, an 8KB machine with a base price of $100,000.
IBM's 1400 series machines, aimed specifically at the business market, are being distributed.
The COBOL (Common Business Oriented Language) programming language is invented. One of the unique facets of COBOL is its attempt to stay close to the spoken language.
Psychologist Frank Rosenblatt creates the Mark I Perceptron, which has an "eye" that can learn to identify its ABCs.

1961 The first Stretch computer, a computer with 100 times the power of any computer in production, is delivered to Los Alamos, N.M.
Hewlett-Packard stock is accepted by the New York Stock Exchange for national and international trading.
Jay Forrester, the author of "Industrial Dynamics," explains how the DYNAMO programming language can help manage a company.
General Motors puts the first industrial robot—the 4,000-pound Unimate—to work in a New Jersey factory.

1962 Fairchild Semiconductor and Texas Instruments begin mass-producing the integrated circuit.
The first laboratory computersbegin to appear In physics labs, these are MCAs. (multi-channel analyzers for pulse height analysis, looking at radioisotope spectra). In physiology labs, hard-wired special purpose computers are made available for data acquisition, and as signal averagers: Models include the CAT (computer of average transients), the Mnemotron, and Enhancetron; these are evoked response averagers.
Manchester University installs the first ATLAS computer. One of ATLAS' unique traits is an early form of virtual memory.
For the first time, IBM's U.S.-based annual computer revenue (at $1 billion) surpasses its other revenue.
A NASA rocket, the Mariner II, is equipped with a Motorola transmitter on its trip to Venus.
The APL (A Programming Language), which is a way of notating mathematical formulas on the computer, is invented.

1963 Doug Engelbart invents and patents the first computer mouse.
Integrated circuits make their appearance in a commercial product, the hearing aid.
The Institute of Electrical and Electronic Engineers (IEEE), an association of engineers, scientists, and students, is founded.
The American Standard Code for Information Interchange (ASCII) is developed to standardize data exchange among computers.
An NIH-funded laboratory computer project results in the LINC Lab Computer, first developed at Lincoln Labs and MIT, later at Washington University in St. Louis: a computer designed for the lab environment. Example of a command: SAM n to sample signal with A-D. Built around early minicomputer, PDP 5 & 8.

1964 Dartmouth University's John Kemeny and Thomas Kurtz develop BASIC (Beginner's Allpurpose Symbolic Instruction Language) because they want a simple computer programming language.
PL/1 programming language, a supposed "Super Language," is invented. It is a combination of FORTRAN and COBOL.
The first computerized encyclopedia is invented at the Systems Development Corp.
Motorola equipment is used to retrieve images of Mars.
The picture-phone is first displayed at the New York World's Fair.
American Airlines and IBM introduce the Semi-Automated Business Research Environment, or SABRE, which computerizes the airline reservation system. It operates in realtime and can transmit flight information in seconds.

1965 Ted Nelson coins the term "hypertext," which refers to text that is not necessarily linear.
Minicomputers become popular in early 1960's. A major manufacturer is DEC, Digital Equipment Corporation, which grows to be the largest manufacturer of minimomputers. Between 1964 and 1975, approximately 50,000 of the PDP-8 are sold: Models included the original PDP-8, the 8I (more use of integrated circuits), 8S (serial processing), 8F, 8E, and 8A (also the heart of the DecMate, a word processor). The PDP-8 was hybridized with the LINC to make LINC-8, remarketed as the PDP-12 in 1968 (SDSU Biology Department's second computer!).
Donald Davies invents "packet switching," which is a new concept for computer communications. Packet switching involves breaking down a message or information into small pieces and sending them to a new location over communications lines. The technology will play an integral part in the creation of the Internet.

Harvard and MIT start computer dating services, and Dartmouth begins a computer date rating service.
The number of British patent applications reaches 55,507, up from about 26,000 in 1900 and 100 in 1800.
The decade 1965-75 is the decade of the minicomputer: Popular machines include the DEC PDP-8 (12 bit), PDP-9 (18 bit), PDP-10 (32 bit), and PDP-11 (16 bit). The Nova product line includes the Nova 2,3,4, and Super Nova. The Hewlett Packard HP9000 servie also sells well .Cost range for minis is $20,000 to $150,000.
The typical minicomputer was 8-16 bit word length, 32-64KB of RAM, with TTY (a Teletype - no CRT terminals yet), magnetic or paper tape readers. Mainframe computers were 16-32 bit word machines, up to a quarter of a MByte, with hard disks, and a price range of 100,000 to one million dollars. Supercomputers were 32 bit, up to 1 Mbyte memory, lots of peripherals, priced 1 to 10 million.

1966 MIT's Joseph Weizenbaum writes a program, called ELIZA, that makes the computer act as a psychotherapist.
The first personal computer club, the Amateur Computer Society, is established by Stephen B. Gray. The group publishes the ACS, which will be considered the first personal computer newsletter.

1967 IBM creates the first floppy disk.
The LOGO programming language is developed. LOGO will later be known for its "turtle graphics," a simplified interface useful for teaching children and computer "newbies."

1968 Robert Noyce and Gordon A. Moore co-found Intel Corp., which will be known for the microprocessor.
Seiko markets a miniature printer for use with calculators.

1969 Control Data Corp., led by Seymour Cray, releases the CDC 7600, which is often considered to be the first supercomputer.
Unix, a free operating system still in use today, is developed by AT&T Bell Laboratories.
Gary Starkweather, while working for Xerox, invents the laser printer.
A Motorola transponder transmitter is used to relay Neil Armstrong's words from the moon to Earth.
The U.S. Department of Defense sets up the ARPANet (Advanced Research Projects Agency), a network able to withstand partial destruction from bombs or other disasters and still function. This was the Internet in its fledgling stage.
Jean Sammet publishes "Programming Languages: History and Fundamentals," which many consider the standard book about programming languages.
CompuServe, the first commercial online service, is established.
Seiko develops the world's first quartz wristwatch.
Shakey, a fully mobile but wobbly and slow robot, makes the rounds at the Stanford Research Institute.

1970 Intel announces the 1103, a new memory chip containing more than 1,000 bits of information. This chip is classified as random-access memory (RAM), which means the user can write instructions into the computer's memory.
The Xerox Palo Alto Research Center (PARC) is established to perform basic computing and electronics research.

1971 The first microprocessor, the Intel 4004, is designed. This single chip contains all the basic parts of a central processor.
The Pascal programming language is invented by NiKlaus Wirth. The program, a compact, step-by-step language, is used primarily as a teaching tool.
Micro Instrumentation and Telemetry Systems (MITS) begins producing the first largescale integrated calculator kit in the United States.

1972 Philippe Rouseel invents PROLOG, a new type of programming language, for the Artificial Intelligence Group at the University of Marseilles.
Atari releases Pong, the first commercial video game, with Asteroids soon to follow.
Dennis Ritchie at Bell Labs invents the C programming language. C will become the practical standard in microcomputer and workstation programming.
Radio Shack introduces its first calculator.
The compact disc is invented in the United States.

1973 The term "microcomputer" appears in print.
Robert Metcalfe creates Ethernet, a local-area network (LAN), to link the minicomputers at the Xerox Palo Alto Research Center (PARC). As of 1995, the Ethernet has served to interconnect more than 50 million computers.
Interactive laser discs make their debut.

Wang Laboratories releases the easy-to-use Wang Word-Processing System, which includes a keyboard printer, and storage device.

1974 Intel's improved microprocessor chip, the 8080 (which is designed for general use), becomes the standard in the microcomputing industry.

The first Toshiba floppy disk drive is introduced.

Jack S. Kilty, Jerry D. Merry man, and James Van Tassel of Texas Instruments are granted the patent for the electronic handheld calculator.

1975 MITS ships one of the first PCs, the Altair 8800 with one kilobyte (KB) of memory, as a $397 mail-order kit.

Edward Roberts and his company (Micro Instrumentation and Telemetry Systems [MITS]) are said to have coined the term "personal computer."

Paul Allen and Bill Gates write the first computer language program for personal computers, which is a form of BASIC designed for the Altair. Gates drops out of Harvard and founds Microsoft with Allen.

MOS Technology 6502 (which is fast, powerful, and cheap) is widely used in popular home computers. This technology adds two 8 bit numbers in a millionth of a second.

The Byte Shop, one of the first computer stores, opens in California. About two years later, owner Paul Terrell will sell a chain of 74 Byte Shops for $4 million.

1976 Steve Wozniak and Steve Jobs found Apple Computer, which will become a multimillion dollar company and play a major role in the computer industry.

Bill Gates publishes a letter in the Altair user newsletter, complaining of illegal copies of BASIC.

Microsoft introduces an improved version of BASIC.

The first convention of computer hobbyist clubs is held in New Jersey.

1977 Apple Computer Inc., Radio Shack, and Commodore all introduce mass-market computers, beginning the PC era and the microcomputer race.

Apple Computer's Apple II, the first personal computer with color graphics, debuts, and the now-famous Apple logo is designed by Rob Janoff of Regis McKenna Advertising.

Commodore announces that the $495 PET (Personal Electronic Transactor) will be a self-contained unit, with central processing unit (CPU), random-access memory (RAM), read-only memory (ROM), keyboard, monitor, and tape recorder all in one package.

Radio Shack's TRS-80 Model I Microcomputer is introduced. Radio Shack calls a press conference at the New York Stock Exchange to announce its debut, but a bomb goes off three blocks away, and Radio Shack is unable to make the announcement.

Microsoft sells the license for BASIC to Radio Shack and Apple and introduces the program in Japan.

In Morristown, N.J., a computer retail franchise opens under the name Computer Shack. The company is later renamed ComputerLand (after opposition from Radio Shack) and becomes a leading hardware and software outlet.

A week-long computer camp - the first of its kind - takes place in Indiana.

1978 Epson introduces the TX-80, which is the first commercially successful dot matrix printer for personal computers.

Microsoft introduces a new version of COBOL.

Microsoft and ASCII Corp. in Japan begin an operating agreement, making ASCII Microsoft's first Far East connection.

Intel invents the 8086. It uses 29,000 transistors, costs $360, and can access one megabyte (MB) of memory.

The 5.25-inch mini-floppy disk becomes the industry standard, replacing the 8 inch floppy.

Ward Christensen and Randy Seuss have the first major microcomputer bulletin board up and running in Chicago.

New York City is home to the first Personal Computer Expo.

1979 Software Arts Inc.'s VisiCalc, the first electronic spreadsheet and business program for the Apple II, is released.

Epson improves upon the TX-80 with another dot matrix printer, the MX-80, which soon becomes an industry standard.

The Motorola 68000, one of the most powerful and versatile 16-bit chips, performs multiplication as a single operation rather than multiple addition operations and adds two 16-bit numbers in 240 billionths of a second.

The Apple II Plus is introduced. It has 48 kilobytes (KB) of memory and sells for around $1,200.

Texas Instruments enters the microcomputer market with the TI 99/4 personal computer, which sells for $1,500.

Hayes markets its first modem, which sets the industry standard for modems in years to come. Most modems produced today are Hayes-compatible.

Atari introduces a coin-operated version of Asteroids.

More than half a million computers are in use in the United States.

1980 By the start of this decade microcioomputers were, 8 or 16 bit machines, typically 64-128KB RAM, with 5-1/4” floppy disk drives, winchester hard drives (20 or 40 MB), costing from $3,000 to 15K,000. Minis were 16-32 bit, 1-2 MByte, with hard disks, costing 50-150K$. Mainframes were 32 or 64 bit, to 5 MBytes, 100-1M$. Supercomputers: 64 bit, many MBytes, 10-20M$ (Cray1).

IBM hires Paul Allen and Bill Gates to create an operating system for a new PC. The pair buys the rights to a simple operating system manufactured by Seattle Computer Products and use it as a template. IBM allows Allen and Gates to retain the marketing rights to the operating system, called DOS.

MS-DOS (Microsoft's version) and PC DOS (IBM's version) soon become the most popular microcomputer operating systems.

Microsoft licenses Unix and starts to develop a PC version, XENIX.

IBM hires Microsoft to develop versions of BASIC, FORTRAN, COBOL, and Pascal for the PC being developed by IBM.

The first Tandy Color Computer is introduced.

John Bell invents the first easy database program, the Personal Filing System (PFS), to run on Apple II computers.

More than 1 million computers are in use in the United States.

1981 IBM joins the personal computer race with its IBM PC, which runs the new DOS operating system.

BITNET, one of the first wide area networks, is founded to serve academic institutions. It will become the largest computer network before being overshadowed by the Internet.

Microsoft establishes a national retail sales network and formally incorporates, becoming Microsoft Inc.

Xerox introduces the graphical Star workstation, which greatly influences the later development of Apple's future computer models, Lisa and Macintosh, as well as Microsoft's Windows.

Hayes introduces the Smartmodem 300 with its standard-setting AT command set and an operating speed of 300 bits per second (bps).

Adam Osborne introduces the Osborne I, the first successful "portable" computer which weighs in at a mere 25 pounds.

The Hewlett-Packard Superchip, the first 32-bit microprocessor, adds two 32-bit numbers in 55 billionths of a second.

Commodore ships the VIC20, soon to be the world's most popular computer, at $299.95.

Logitech, a computer peripherals company, is founded in Switzerland.

Hayes releases the Smartmodem 1200, which transfers data at 1,200 bits per second (bps).

1982 Peter Norton creates Norton Utilities, a file recovery program.

Microsoft releases FORTRAN for the PC, COBOL for MS-DOS, and Multiplan for the Apple II and CP/M machines.

Microsoft establishes a subsidiary in England, Microsoft Ltd., beginning a foreign sales effort.

WordPerfect 1.0, a word processing program that will become one of the market's most popular, is introduced by WordPerfect Corp.

Lotus Development is founded, and Lotus 1-2-3, a spreadsheet program, is introduced.

Compaq Computer Corp. is founded by Rod Canion and other Texas Instruments Inc. engineers.

Compaq introduces the first portable clone of the IBM PC and becomes IBM's biggest challenger in the corporate market.

Commodore begins selling the Commodore 64, an improvement on the VIC-20. It contains 64 kilobytes (KB) of random-access memory (RAM) and contains Microsoft BASIC as an operating system. In the next year, the price drops from $600 to $200, helping to make it the best-selling computer of all time.

Epson introduces the HX-20, the first notebook-sized portable computer.

MS-DOS version 1.25 is released. The installed user base for MS-DOS is 232,000.

Six-year-old Apple Computer is the first personal computer manufacturer to hit the $1 billion mark for annual sales.

1983 The PC is Time magazine's "man of the year."

The Apple IIe is introduced. With 64 kilobytes (KB) of random-access memory (RAM), a one megahertz (MHz) 6502 processor, and running Applesoft BASIC, it sells for $1,400.

Microsoft releases Microsoft Word 1.0, a word processing program that will become one of the market's most popular.

Lotus Development Corp.'s Lotus 1-2-3 becomes the spreadsheet software of choice, ousting VisiCalc, the spreadsheet that had first presented a reason for many users to buy a PC.

Tandy, Epson, and NEC all sell notebook computers, but only Tandy's (the Model 100) becomes popular because of its lower price ($499) and easier-to-use interface.

PC-Draw, the first IBM PC-based graphics program, is introduced.
More than 10 million computers are in use in the United States.

1984 Appleworks, a suite of programs containing a word processor, database manager, and spreadsheet, is released.
Microsoft's Bill Gates is featured on the cover of Time magazine.
The 3.5-inch diskette debuts and eventually becomes the industry's preferred diskette size.
Hewlett-Packard's Laser Jet laser printer, which retails for $3,495, brings high-quality printing to PCs.
Hayes introduces Smartcom II, which is communications software for the IBM PC, to be used with Hayes modems. Software for modems lets users automatically dial or answer calls, transfer and process data, and disconnect calls. Hayes releases a modem capable of sending data at 2,400 bits per second (bps).
Dell Computer is founded in Austin, Texas. The company will later become a major force in mail-order computer sales.
The Apple II compact is introduced. With 128 kilobytes (KB) of random-access memory (RAM) and a 3.5-inch diskette drive, the system weighs just 7.5 pounds and costs $1,300.
In a commercial during the Super Bowl, Apple Computer introduces the Macintosh, a computer with a graphical user interface. Instead of typing commands, users select options with a mouse or other pointing device. In six months, sales of "the computer for the rest of us," as the advertisements call it, reach 100,000.
Microsoft introduces MS-DOS 3.0 for the IBM PC AT and MS-DOS 3.1 for networks; Multiplan, BASIC, and Word 1.0 for the Macintosh; and Project (a project planning and management applications package) and Chart (a graphics program) for the PC and Macintosh.
The Tandy 1000 personal computer is introduced and becomes the best-selling IBM-compatible computer of the year.
IBM introduces the Enhanced Graphics Adapter (EGA) video card with higher resolution, more colors, and a quicker response than previous video cards.
University of Southern California professor Fred Cohen creates alarm when he warns the public about computer viruses.
Seiko introduces the first wristwatch computer.

1985 Microsoft and IBM begin collaborating on a next-generation operating system (OS/2).
The computer company Gateway 2000 is founded in Sioux City, Iowa. The company later becomes a major force in mail-order computer sales.
IBM releases the Topview graphical environment, the precursor to OS/2's graphical interface.
Intel introduces the 80386, a 16 megahertz (MHz) processor that incorporates 275,000 transistors. The processor sells for $299 and is able to access four gigabytes (GB) of memory.
Aldus Corp. introduces PageMaker for the Macintosh, a program that lets users mix type and graphics on a page. The combination of this software and the new Apple LaserWriter laser printer begin the era of desktop publishing.
Microsoft Windows 1.0 is shipped. Selling for $100, it provides a much easier interface for users to navigate.
Microsoft introduces more than 20 new computer languages, operating system versions, software products, and computer books.
Quarterdeck's DESQview is the first software to bring multitasking and windowing capabilities to DOS applications.
In A Vision, the first graphics program for Microsoft Windows, is introduced; Micrografx is the first independent vendor to market a Windows-based product.
The Nintendo Entertainment System makes its debut.

1986 Apple introduces Mac Plus. It contains one megabyte (MB) of random-access memory (RAM), sells for $2,600, and includes a new keyboard with cursors and a numeric keypad.
Compaq introduces the first 386-based PCcompatible, beating IBM to the 80386 market.
More than 30 million computers are in use in the United States.
IBM introduces its first laptop computer, the PC Convertible, which has 256 kilobytes (KB) of random-access memory (RAM), two 720KB diskette drives, and sells for $2,000. However, it is the Toshiba laptop clone that becomes the hit of the year.
Microsoft is listed on the New York Stock Exchange. It sells shares to the public at $21 each, making Bill Gates the world's youngest billionaire.

1987 Hayes demonstrates its ISDN (Integrated Services Digital Network) adapter, which is a modem for ISDN lines, providing speeds up to four times greater than the fastest modem on a telephone line.
Microsoft purchases Forethought Inc., the company that developed the presentation software PowerPoint. PowerPoint becomes available for Macintosh and PC and as part of Microsoft Office.

Microsoft introduces Windows 2.0 and Microsoft Works. Works is an integrated applications package for new users and includes a word processor based on Microsoft Word, a spreadsheet based upon Multiplan and Excel, and a database.
Microsoft and IBM release OS/2 1.0 and claim it will replace MS-DOS.
Microsoft stock hits $100 per share.
The expandable Mac SE is introduced at $2,900.
IBM introduces the PS/2 personal computer, which has improved graphics, a 3.5-inch diskette drive, and a proprietary bus to help fend off the clone makers.
IBM sends clone manufacturers letters demanding retroactive licensing fees.
The Computer Security Act is passed, requiring that federal agencies develop computer security plans to protect sensitive, but unclassified, information and start security training programs.

1988 About 45 million PCs are in use in the United States.
Apple files a copyright infringement (of the Macintosh operating system) lawsuit against Microsoft for Windows 2.0 and Hewlet tPackard for New Wave (a graphical interface kit).
Microsoft introduces PC Works and OS12 LAN Manager for networked PCs and Microsoft Publisher, a desktop publishing program for novice users.
The installed base for MS-DOS is 29,550,000.

1989 Tim Berners-Lee proposes a way to let scientists browse each other's papers to the European Particle Physics Laboratory (CERN). The language and protocol he develops leads to the creation of the World Wide Web.
Creative Labs introduces SoundBlaster, a sound card for the PC with an 11-voice FM synthesizer with text-to-speech, digitized voice input/output, a MIDI port, a joystick port, and bundled software.
GRID Systems Corp. announces the GRiDPAD, the first pen-based computer.
More than 100 million computers are in use worldwide.
Intel releases the 486DX processor, with more than 1 million transistors and multitasking capabilities.
Hayes announces an enhancement of the AT command set for modems to accommodate Integrated Services Digital Network (ISDN) technology.
Quarterdeck is granted a patent for creating a way to display more than one DOS application on-screen inside Windows.
Poqet announces the Poqet PC, the first pocket-sized MS-DOS-compatible computer.

1990 Microsoft releases Windows 3.0, a complete rewrite of previous versions and one in which most desktop users will eventually spend most of their time. Windows 3.0 uses a graphical user interface (GUI), and Microsoft sells more than 3 million copies of Windows 3.0 in one year.
Microsoft exceeds $1 billion in sales in a single year, the first computer related company to do so.
Microsoft releases its first product for the Russian market, Russian DOS 4.01.
The World, which is the first commercial provider of Internet dial-up access, comes online.
Creative Labs introduces the SoundBlaster Pro. The 8-bit stereo sound system, which includes a CD-ROM interface, a digital and analog mixer, 20-voice FM synthesis, a MIDI port, a joystick port, and stereo recording for line-in and CD audio, is accepted as the stereo sound standard for multimedia PCs. SoundBlaster becomes the best-selling add-on board for the personal computer market.
Quarterdeck releases its memory management software, QEMM386 version 5.1. It becomes the fastest-selling software program in the United States.
The Multimedia Personal Computer (MPC) standards are developed by Tandy and Microsoft. These standards denote the specifications a computer needs to be considered capable of running multimedia software.
Microsoft and IBM stop working together to develop operating systems.

1991 Gopher—a menu-driven, search-and-retrieval tool that helps Internet users locate information online—is developed at the University of Minnesota.
In an effort to bring lower-cost 486 performance to the mainstream user, Intel introduces the 486SX chip. The chip performs at 20 megahertz (MHz) and sells for $258.
The World Wide Web is launched. Tom Berners-Lee, a scientist at the European Particle Physics Laboratory (CERN) in Geneva, develops the Web as a research tool.
Following its decision not to develop operating systems cooperatively with IBM, Microsoft changes the name of OS/2 to Windows NT.
Although IBM had expected to sell a maximum of 250,000 personal computers, sales surpass 60 million units in the business market. However, the year marks the company's first revenue decline in almost half a century.
Logitech ships its 10 millionth mouse.
Although the GRID Systems Corp.'s GRiDPAD and MicroSlate Inc.'s Datellite 300 are the only two computers currently available that recognize handwriting and allow data to be input using a special

pen, the push for handwriting recognition gains momentum as 30 companies announce plans to develop similar computers.
Creative Labs releases a multimedia upgrade kit that includes a CD-ROM drive, the SoundBlaster Pro sound card, a MIDI kit, and a variety of software applications. The kit includes all the tools needed to meet the MPC standards.
Sony, Philips, and Microsoft introduce CD-ROM extended architecture, which makes it possible for text and video to be narrated in CD-ROM software.

1992 Bill Gates is now the second richest man in the United States, with a net worth esti-mated at more than $4 billion.
Microsoft introduces Windows 3.1. It sells more than 1 million copies within the first two months of its release.
The number of host computers on the Internet passes the 1 million mark.
Microsoft and IBM agree to sever all ties that connect the two companies but sign a separation document that allows source-code sharing for current operating systems until September 1993.
Intel releases the 486DX2 chip with a clockdoubling ability that generates a higher operating speed.
Radio Shack releases the Tandy Sensation! MPC, the first personal computer based upon the MPC specification.

1993 Fifty World Wide Web servers are known to exist as of January.
President Bill Clinton puts the White House online with a World Wide Web page and E-mail addresses for the president, vice president, and first lady.
Microsoft releases Windows NT, Microsoft Office 4.0, and MS-DOS 6.0, which includes the ill-fated DoubleSpace compression utility. Stac Electronics later sues Microsoft for patent infringement in regards to the DoubleSpace utility. In subsequent versions of MS-DOS, Microsoft removes the utility and eventually replaces it with DriveSpace.
Intel releases the Pentium processor. This 60 megahertz (MHz) processor incorporates 3.2 million transistors and sells for $878.
Gateway 2000 sells its millionth computer.
Microsoft releases Windows NT 3.1, Windows for Workgroups 3.11, and MS-DOS 6.2.
Mosaic, the first graphical Web browser, is released by the NCSA (National Center for Supercomputing Applications) at the University of Illinois.
John Scully is named president of Apple Computers Inc. Scully is best known for encouraging Apple to invent and sell a palmtop computer called the Newton.
The Internet experiences massive growth. The World Wide Web grows 341,634%; Gopher grows at a rate of 997%.
IBM announces a year-end loss of $8.1 billion.
The Environmental Protection Agency, along with 50 computer companies, establishes Energy Star guidelines, which aim to decrease the amount of power that PCs use when they're idle.

1994 Marc Andreessen and James H. Clark found Netscape Communications and release Netscape Navigator browser software, which provides an easy, point-and-click method of navigating the Internet.
Commodore Computers, which sold the famous Commodore 64 personal computer, files bankruptcy.
The Internet celebrates its 25th anniversary.
Microsoft purchases Softimage Inc., a Montreal-based supplier of Hollywood special effects tools, for $130 million in stock. Softimage Inc.'s tools were involved in creating the special effects for "Jurassic Park" and other films.
After Stac Electronics successfully sues Microsoft for patent infringement in regards to the DoubleSpace utility included in MS-DOS 6.0 and 6.2, Microsoft releases MS-DOS 6.21, which has no disk compression utility. Later that year, Microsoft releases MS-DOS 6.22 with the DriveSpace disk compression utility.
Microsoft, Hewlett-Packard, U.S. West, Telstra, Deutsche Telekom, NTT, Olivetti, Anderson, and Alcatel join forces in an effort to develop the hardware and software necessary for the actualization of interactive television.
Microsoft and Visa International enter an agreement whereby Microsoft will develop software that will allow for electronic shopping.
IBM releases OS/2 Warp 3.0. It will sell 4 million copies during the next year.
Microsoft releases the beta version of its new operating system, mysteriously referred to only as 'Chicago." Chicago will later be released as Windows 95.
Because of questions regarding potential antitrust violations surrounding the distribution of its operating systems, Microsoft signs a consent agreement with the U.S. Department of Justice and the European Union to cease its discounting practices related to MS-DOS and Windows.

1995 Apple finally allows other companies to clone the Macintosh computer.

Hewlett-Packard, Borland, Dell, and Lotus are among 50 companies in the PC industry who agree to sell and service their products over The Microsoft Network.
Microsoft releases Microsoft “Bob”, a graphical user interface designed for the home user. In the first six months, a mere 30,000 units are sold.
Following the formation of DreamWorks SKG, the new entertainment studio headed by Hollywood moguls Steven Spielberg, Jeffrey Katzenberg, and David Geffen, Microsoft announces that it has formed a joint venture with the company. This new joint-venture software company, called DreamWorks Interactive, will develop and create entertainment multimedia software for home consumers.
A number of Internet-related companies go public. Netscape has the most successful initial public offering (IPO), opening at $28 per share and closing at $58 per share. By the day's end, the company, which gave away its Web browser and never made a profit, had increased its worth to $2.2 billion. This was the third largest NASDAQ IPO share value ever.
Microsoft and General Electric's NBC television network form a partnership to develop interactive television programs.
After Microsoft announced its intentions to purchase Intuit, the U.S. Department of Justice files suit to stop Microsoft. As a result, Microsoft withdraws its offer.
Microsoft releases Windows 95, Microsoft Office 95 and the online Microsoft Network. More than 1 million copies of Win95 are sold in the first four days of its release.
Operation Home Front allows U.S. soldiers in the field to communicate via the Internet with stateside family members.
Intuit, the maker of the financial software Quicken, announces that it is working with 19 financial institutions, including American Express, Chase Manhattan Bank, and Wells Fargo, to develop an online link that will let customers with modems dial into their accounts.
Although it costs Intel nearly $475 million to do so, the processor manufacturer destroys 1.5 million mathematically flawed Pentium chips.
A New York judge rules that Prodigy Services Co. is responsible for the content of a libelous message posted by a subscriber. Because Prodigy claimed it tried to censor some obscene material, the court ruled that the service was responsible for all material posted.
1996 Intel releases the 200 megahertz (MHz) P6, or Pentium Pro, chip, which is the next generation of processors.
IBM and Sears sell the Prodigy online service to a group of investors called Internet Wireless.
AT&T introduces Worldnet, which provides AT&T customers in certain cities with Internet access and five free hours of use each month.
The computer Deep Blue beats chess master Garry Kasparov in two chess matches (although Kasparov went on to win the series). Deep Blue proved that computers may be able to come close to "thinking" and helping humans solve complex problems in many industries.
"Java" and "telephony" are the buzzwords on the Internet. Java allows small applications, called applets, to be run on Web sites, expanding the capabilities of the World Wide Web. Telephony lets users talk to each other over the Internet without paying long-distance telephone charges.
The America's Carriers Telecommunication Association (ACTA), acting on behalf of U.S. regional long-distance carriers, asks the FCC to subject Internet telephony to the same access charges that other long-distance carriers pay.
Intel announces that the MMX processor will be released in 1997. The processor will incorporate a video accelerator into the chip itself.
Bill Gates has a net worth of $18 billion, which makes him the richest man in the United States.
In a deal valued at about $300 million, NEC Corp., the largest seller of PCs in Japan, merges its PC operations outside Japan with Packard Bell, the number two worldwide seller of PCs in 1995.
NBC and Microsoft offer intercasting just in time for the 1996 Summer Olympics. Intercasting combines the flexibility of the Internet with the programming content of television to create an interactive viewing experience.
Sony enters the PC market with the release of VAIO, a multimedia computer aimed at the home-entertainment market.
President Clinton signs into law the Communications Decency Act (CDA) as part of the Telecommunications Bill, which bans the diffusion of obscene materials on the Internet. The CDA is later declared unconstitutional. Court cases are still pending.
After German officials claim that 200 of CompuServe's online newsgroups violate German obscenity laws, CompuServe incorporates parental control tools into its interface and restores access to the 200 banned newsgroups.
The ENIAC, considered by some the world's first general-purpose computer, celebrates its 50th anniversary.

1997 Presently, microcomputers are 32 bit machines, sold initially with 32 Mbytes of RAM, equipped with a 3-1/2" microfloppy drive, a hard drive with 1 to 6 GB storage, a CD-ROM player (up to 24x the speed of the original CD-ROMs on computers), selling for 2, 000 to $ 5,000. Processor speeds a minimum of about 120 Mhz, higher end machines to 300 Mhz or more (Pentium II, Motorola 604 in the G3 Macintoshes). Common peripherals include color printers ($300 to 500), scanners ($150), removeable hard drives (like to 100 MB Zip or the 1 GB Jaz). Minis are 32 or 64 bit, to about 256 MByte. Mainframes: 64 bit, to 1 GByte RAM or more storage. Supercomputers are 64 bit, very high speed, billions of calculations/second (like the San Diego Supercomputer Center's Cray.
Intel introduces the MMX chip. Several computer manufactures introduce sub 1,000 computers, computers that cost less then $1,000.00. AOL faces several lawsuits from subscribers who are upset about the difficulties encountered when attempting to connect to its services.
IBM's Deep Blue computer defeats world champion chess player Garry Kasparov in their second six-game showdown, winning the tie-breaking game in only 62 minutes.
Digital Video Discs / Digital Versatile Discs (DVDs) go on sale.
Bill Gates is now the world's richest businessman.
The NASA Pathfinder Web site, which is running real-time images sent from the Pathfinder on Mars receives more than 100 million hits during its first four days. The site sets a new record.
Microsoft releases Microsoft Office 97, announces Windows 98
3Com buys U.S. Robotics for $6.6 billion making the consolidation the largest in the history of computer companies.
Apple releases MAC OS 8. Microsoft invests $150 million in Apple Computers Inc. and agrees to continue creating software for Apple computers, in agreement Apple makes Microsoft Internet Explorer its browser of choice for Macintosh computers.
The Intel Pentium II 233 MHz processor is released.

1998 Microsoft releases Office 98 suite of Word, Excel, Powerpoint, Outlook Express, for both PC and Mac platforms.
Compaq, the largest manufacturer of PCs, purchases Digital Equipment Corporation for $9 billion.
Windows 98 for the PC is introduced.
Number of Internet hosts reaches 40 million.
Intel releases the Celeron processor.
Hearings open between Microsoft and the U.S. Department of Justice to whether Microsoft has a monopoly on the software market.
Netscape releases Navigator 5.0 as well as revealing its complete source code for Navigator on its Web site.
Bill Gates, is hit in the face with a cream pie. During the demonstration of a pre-release copy of Windows 98 at Comdex Bill Gates and an assistant demonstrate how to install a scanner. During the demonstration Windows 98 causes an error message.
Apple introduces the iMac, helps bring Apple back on the computer maps as a very easy and friendly computer.

1999 Pentium III processor debuts, first at 450 MHz, then 550 and 600 MHz
Top vendors: for personal machines, Dell (25% market share), for UNIX workstations, Sun (57%)
IBM introduces a new family of hard drives Ultrastar with a capacity of 73.4 GB. They run at 10,000 rpm and boast a data density of 7 million bits per square inch.
Linux Kernel 2.2.0 Released. The number of people running Linux is estimated at over 10million, making it an not only important operating system in the Unix world, but an increasingly important one in the PC world.

2000 Offical Launch of Windows 2000 - Microsoft's replacement for Windows 95/98 and Windows NT. Claimed to be faster and more reliable than previous versions of Windows. It is actually a descendant of the NT series, and so the trade-off for increased reliability is that it won't run some old DOS-based games. To keep the home market happy Microsoft have also released Windows ME, the newest member of the 95/98 series.
Many experts, governments and businesses fear that January 1st 2000 could cause serious issues with the date stamp on computers. The belief was that because many old computers relied off of the last two digits of a year such as 99 for 1999, when the year 2000 came 2000 would set the computers to 00 causing the computer to think it was 1900. Called the Year 2000 or Y2K bug many individuals feared for the worst. There were only a few glitches and no catastrophes.
Microsoft Windows 2000 is released.
U.S. Judge Thomas Penfield announces after 2-years in the court that Microsoft be split into two companies although will remain intact until the appeals process is exhausted.
Bill Clinton announces a new web site that will be able to search all government resources.
Napster file sharing unnerves music industry.

5.1 billion emails are sent in the U.S.; 8.2 billion worldwide.
More than 3 million blank, recordable CDs are sold monthly.
5.1 Billion emails are sent in the U.S; 8.2 Billion worldwide.
Microprocessors outdo Moore's Law with Intel's 1.5GHz.
Microsoft gives the mouse an optical sensor.

2001 Microsoft releases Windows XP - the latest version of their Windows operating system. Based on the NT series kernel, it is intended to bring together both the NT/2000 series and the Windows 95/98/ME series into one product. (This was originally hoped to happen with Windows 2000 – didn't.)
Apple releases MacOS X. At it's heart is `Darwin', an Open Source kernel based on FreeBSD. Using this MacOS X finally gives Mac users the stabilty benifits of a protected memory architecture along many other enhancements, such as preemptive multitasking. The BSD base also makes porting UNIX applications to MacOS easier and gives Mac users a fully featured command line interface alongside their GUI.
Intel announces recall of its 1.13 GHz Pentium III processors due to a glitch.
Microsoft announces Windows 95 is now a legacy item and will no longer be sold or shipped to any more customers. Bill Gates unveils the Xbox. Hewlett-Packard Co. co-founder William Hewlett, dies at 87. Claude Elwood Shannon, the mathematician who laid the foundation of modern information theory while working at Bell Labs in the 1940s, dies at 85.
March 08, AOL membership surpasses 28 Million.
Dell computers becomes the largest PC maker.
Hewlett Packard announces plans to buy Compaq.
More than 58,000 computer viruses exist.
More than half of all Americans now use the Internet.

2002 9 of 10 American school children have access to computers at home or school.
DVD burners are popular for downloading or copying movies.
Apple computer that can create movies in DVD format.
Windows XP OS introduced by Microsoft
The Academy of Motion Pictures Arts and Sciences approve a new category for the Oscars titled Best Animated Feature Film Award. Films eligible included Jimmy Neutron, Boy Genius: Monsters, Iin. , Osmosis Jones, Shrek
Microsoft xBox and Nintendo Gamecube released
HP and Compaq merger

2003 Atari Games Corporation goes out of business.
SIGGRAPH 2003 held in San Diego
Apple introduces the Power Mac G5