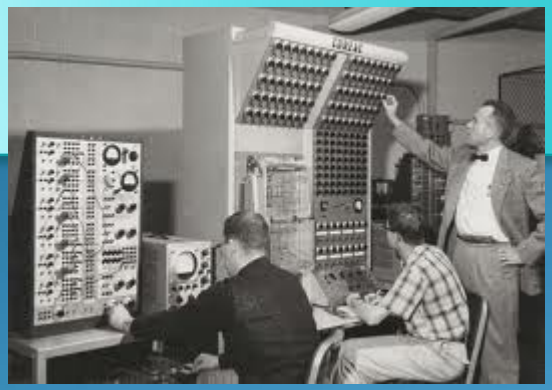
The Five Generations of Computers



First generation computers (1940-1956)

- The first computers used vacuum tubes for circuitry and magnetic drums for memory.
- They were often enormous and taking up entire room.
- First generation computers relied on machine language.
- . They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions.
- The UNIVAC and ENIAC computers are examples of first-generation computing devices.

First generation computers

Second generation computers (1956-1963)

- Transistors replaced vacuum tubes and ushered in the second generation of computers.
- Second-generation computers moved from cryptic binary machine language to symbolic.
- High-level programming languages were also being developed at this time, such as early versions of COBOL and FORTRAN.
- These were also the first computers that stored their instructions in their memory.

Second generation computers

Third generation computers (1964-1971)

- The development of the integrated circuit was the hallmark of the third generation of computers.
- Transistors were miniaturized and placed on siliconchips, called semiconductors.
- Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system.
- Allowed the device to run many different applications at one time.

Third generation computers

Fourth generation computers (1971-present)

- The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip.
- The Intel 4004 chip, developed in 1971, located all the components of the computer.
- From the central processing unit and memory to input/output controls—on a single chip.
- . Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.

Fourth generation computers

Fifth generation computers (present and beyond)

- Fifth generation computing devices, based on artificial intelligence.
- Are still in development, though there are some applications, such as voice recognition.
- The use of parallel processing and superconductors is helping to make artificial intelligence a reality.
- The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

Fifth generation computers