Chapter 1: computing evolution

by

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WHAT IS COMPUTER SCIENCE?

- Computer science is the study of computers and computing including their theoretical and algorithmic foundations, hardware and software, and their uses for processing information.

- Computer science focuses on the automatic processing of information by computer.

2. EVOLUTION OF COMPUTING AND COMPUTERS

- The evolution of computing has happened over centuries thanks to numerous mathematician and physicist researchers.

- Over the centuries, research has focused on processes for automating computing operations.

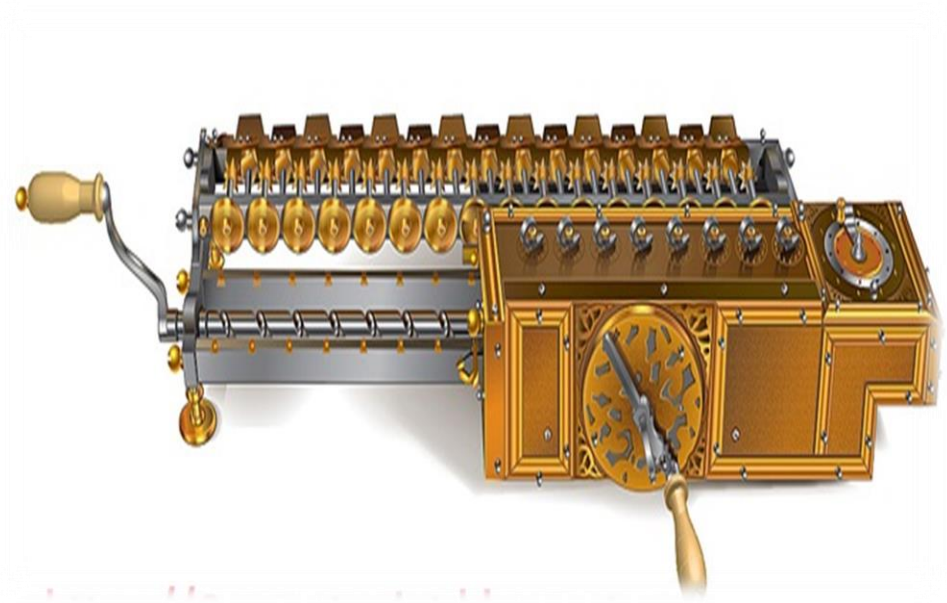Appearance of calculators

PASCALINE

- The first calculator invented by Blaise Pascal in 1642.

- It could only do addition and subtraction,

he internal mechanism

LEIBNIZ CALCULATOR

❑ From 1673: Leibniz devoted his life to improving Pascaline by adding multiplication and division.

❑ However, Leibniz's machine required a quality of mechanical production which was not available at the time.
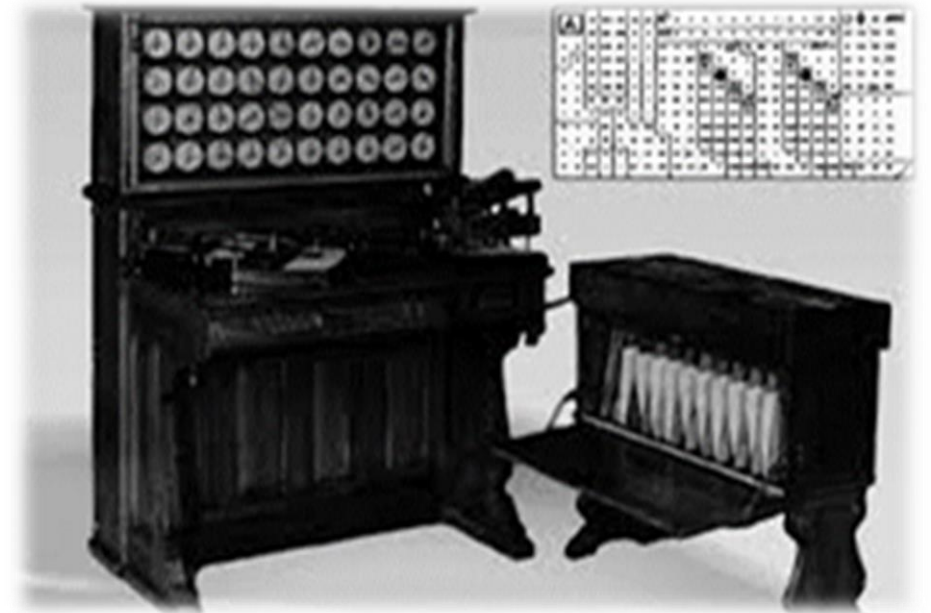
APPEARANCE OF PUNCHED CARDS

- Calculators have moved from mechanics to electronics
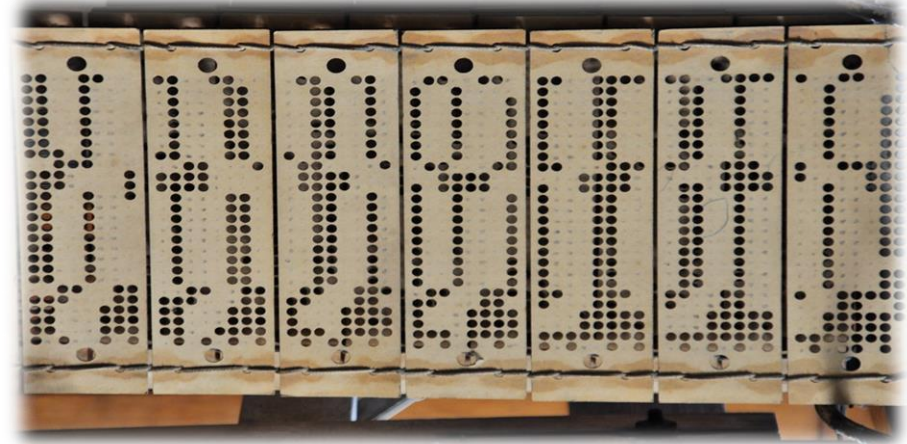
HERMANN HOLLERITH'S MACHINE 1885

- "HERMANN HOLLERITH designed the first punched card machine.

KONRAD ZUSE'S Z1,Z2,Z3
1938-1941

❑ Z1 (1938): the first fully mechanical computer that uses binary.
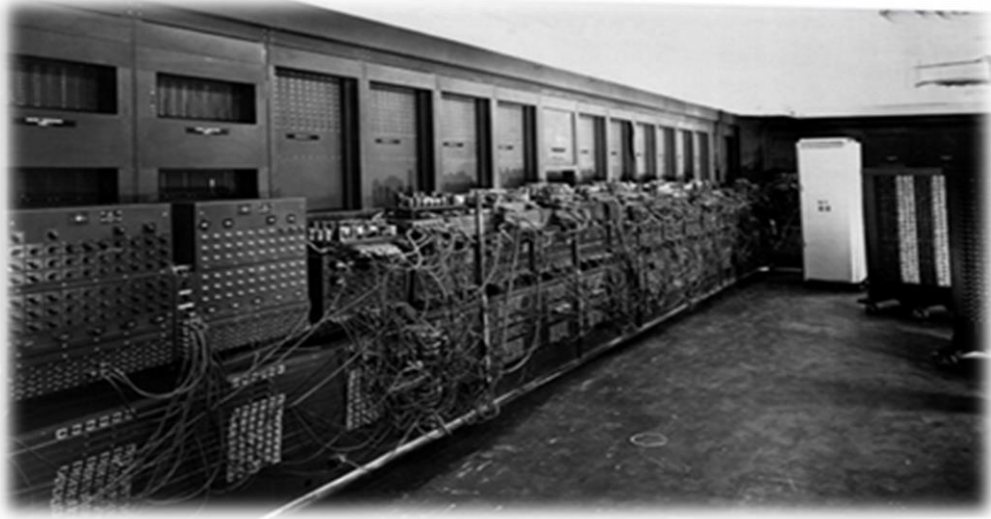
❑ Z2 (1940)

❑ Z3 (1941) the first programmable electromechanical computer.

THE FIRST GENERATION OF COMPUTERS
(1946 – 1957)

- The used technology is based on the use of electronic tubes,

- It is a heavy technology and poses problems of space and electricity consumption.
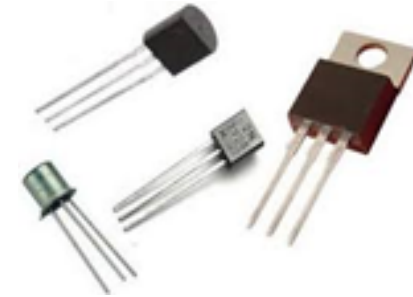

l'ENIAC (Electronic Numerical Integrator and Computer) (1946)

l'EDVAC (**Electronic Discrete Variable Automatic**) (1949)

SECOND GENERATION OF COMPUTERS
(1958 – 1963)

❑ The use of transistors

IBM 7030 (1961)

Computers have become faster than those of the 1st generation, Less bulky, and Consume less electrical energy.

THIRD GENERATION OF COMPUTERS

▪ Integration of integrated circuits

Improvement observed in memory capacities and data processing speed.

Examples:

❑ IBM 360 (1964)
❑ PDP8 de DEC (1965))

PDP8: first mini computer

4TH GENERATION: MICROCOMPUTERS

- The birth of this generation is due to the appearance of microprocessors. a microcomputer is a computer equipped with a microprocessor From 1973, microcomputers began to appear:

- APPLE1 (1976)

- PENTUIM ….etc

le 4004 d'Intel (1971)

Altair 8800 (1975)

Micral- N(1973) : the first microcomputer

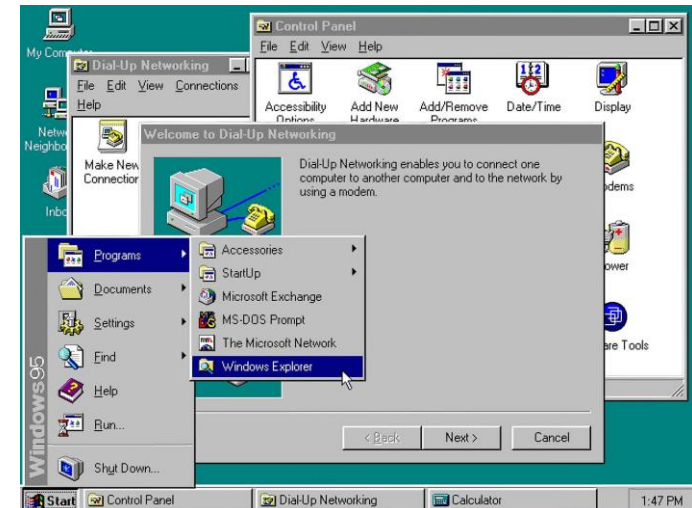# 5TH GENERATION: DEVELOPMENT OF THE GRAPHICAL INTERFACE AND NETWORKS

❑ The appearance of microcomputers with a graphical environment

apple lisa (1983)

▪ Example:

▪ Apple lisa (1983)

▪ 1995 : Windows 95 generalizes the graphical interface on PCs.

▪ 1998: the creation of Google

NOWADAYS..

- Computers are transformed into new objects (smartphone, touchscreen tablet, etc.),

THE FUTURE…..

- Among current trends in computing: "molecular computing"

- molecular computing: refers to the processing of data using molecular circuits replacing traditional materials such as copper or silicon.

Questions!!!