



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

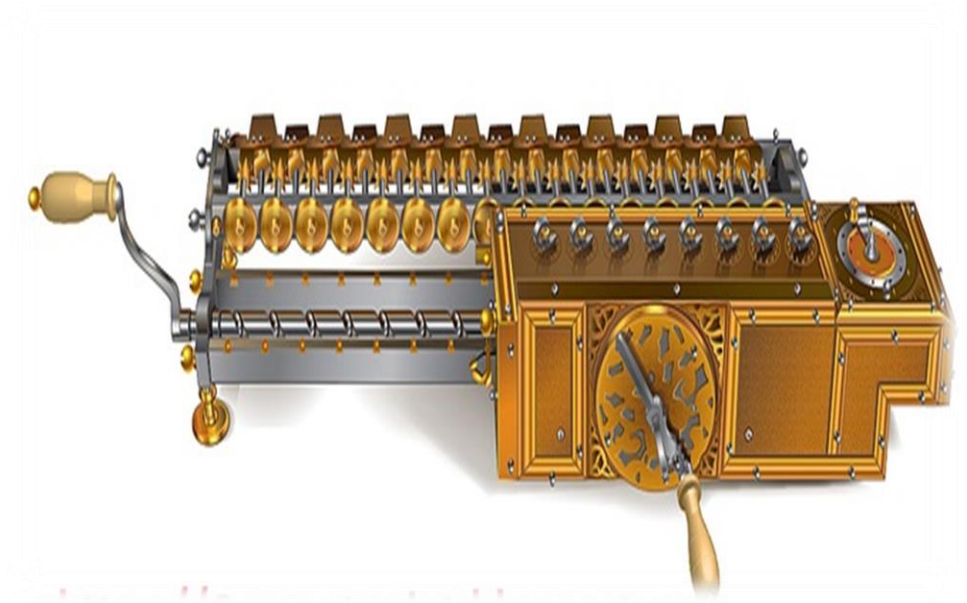
- The first calculator invented by Blaise Pascal in 1642.
- It could only do addition and subtraction,



the internal mechanism

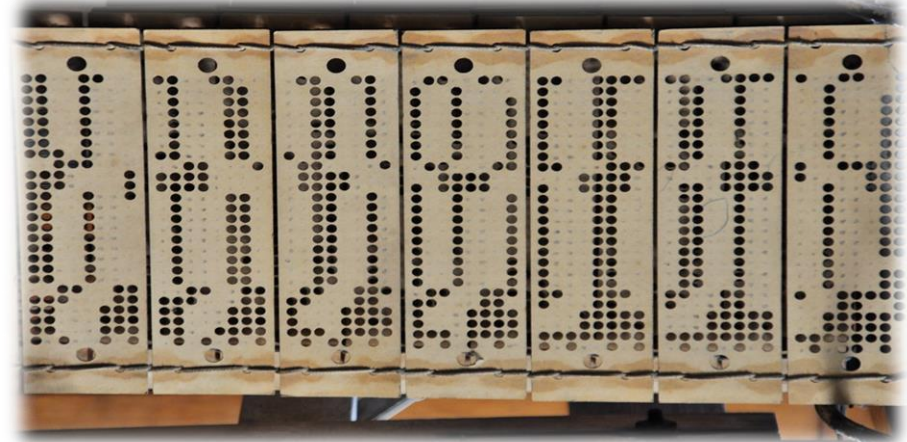
LEIBNIZ CALCULATOR

- ❑ 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)

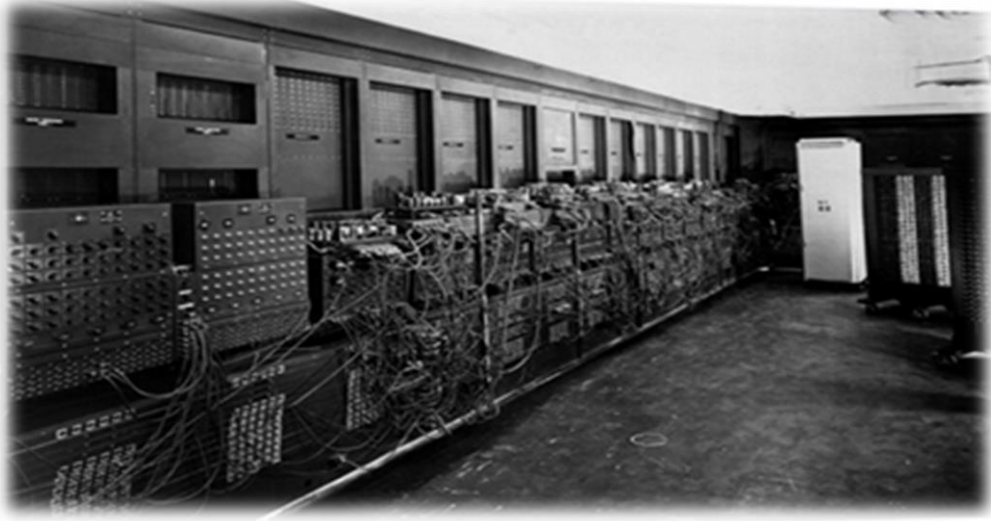
❑ Z3 (1941) the first programmable electromechanical computer.



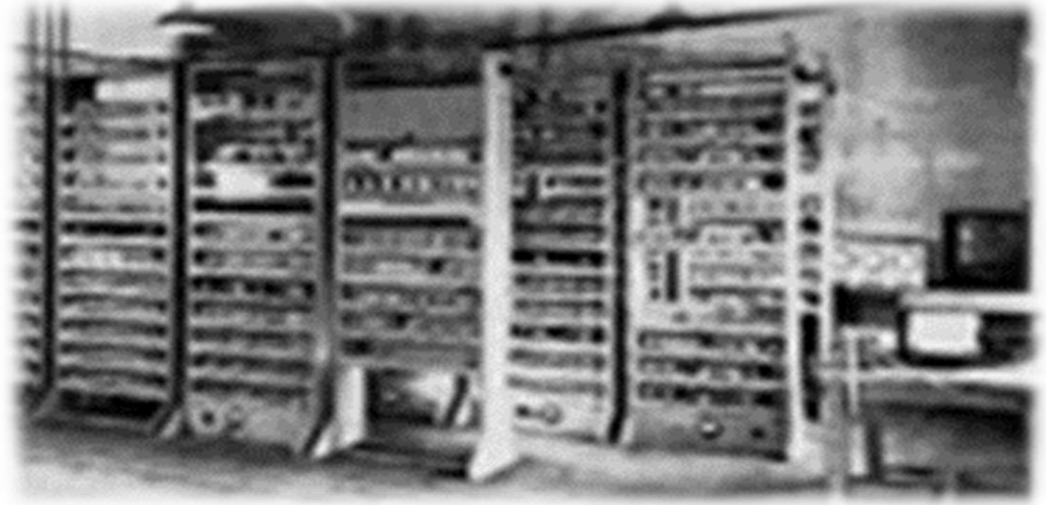
THE FIRST GENERATION OF COMPUTERS (1946 – 1957)



- 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)

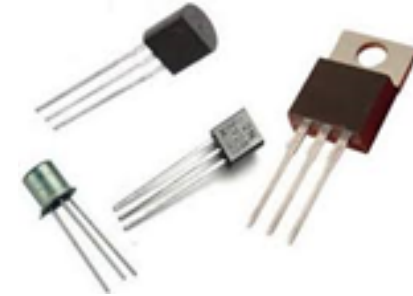


l'EDVAC (**Electronic Discrete Variable Automatic**) (1949)

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)
- PENTUIMetc



le 4004 d'Intel (1971)



Altair 8800 (1975)



Micral- N(1973) : the first microcomputer

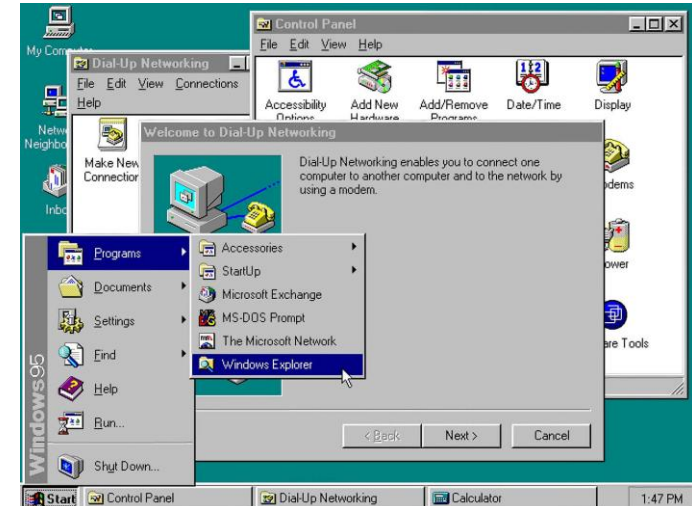
5TH GENERATION: DEVELOPMENT OF THE GRAPHICAL INTERFACE AND NETWORKS

- ❑ The appearance of microcomputers with a graphical environment

- Example:
- Apple lisa (1983)
- 1995 : Windows 95 generalizes the graphical interface on PCs.
- 1998: the creation of Google



apple lisa (1983)



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!!!

