A Brief History of Computing

Will Leeson

January 24th, 2023

What is a computer?

Definition - Computer
A programmable, usually electronic, device that can store, retrieve, and process data[1]

What is a computer?

Definition - Computer

A programmable, usually electronic, device that can store, retrieve, and process data[1]

Origin

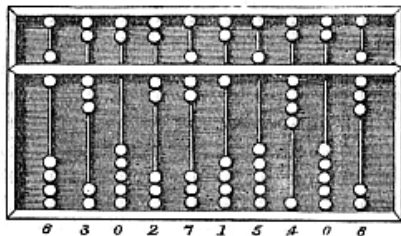The first use of the term comes from human "computers".

Pre-20th Century - Generic Computers

- Recording Information
  - Tally Stick
  - Marked Cloth
- Processing Information
  - Abacus
  - Slide Rule

- Recording Information
  - Tally Stick
  - Marked Cloth
- Processing Information
  - Abacus
  - Slide Rule

Mechanical Computers

- Charles Babbage (1791-1871)

Mechanical Computers

- Charles Babbage (1791-1871)
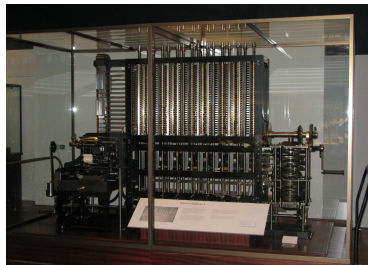 - The "Father of the Computer"

Mechanical Computers

- Charles Babbage (1791-1871)
  - The "Father of the Computer"
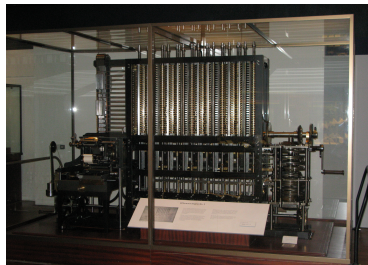 - Conceptualized a machine able to do generic computations

Mechanical Computers

- Charles Babbage (1791-1871)
  - The "Father of the Computer"
  - Conceptualized a machine able to do generic computations
  - Programmed using punch cards

Mechanical Computers

- Charles Babbage (1791-1871)
    - The "Father of the Computer"
    - Conceptualized a machine able to do generic computations
    - Programmed using punch cards
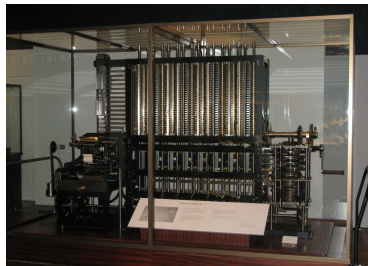   - Involved actual moving parts and cranks

Mechanical Computers

- Charles Babbage (1791-1871)
    - The "Father of the Computer"
    - Conceptualized a machine able to do generic computations
    - Programmed using punch cards
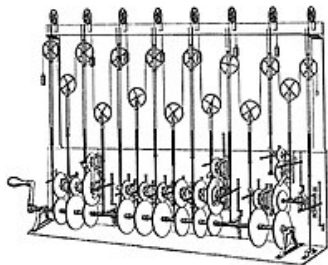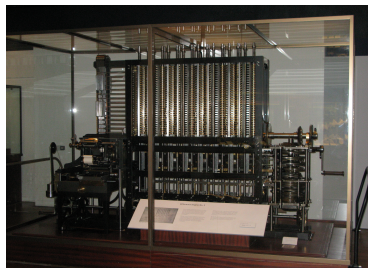   - Involved actual moving parts and cranks
- Analog Computers

Mechanical Computers

- Charles Babbage (1791-1871)
  - The "Father of the Computer"
  - Conceptualized a machine able to do generic computations
  - Programmed using punch cards
  - Involved actual moving parts and cranks
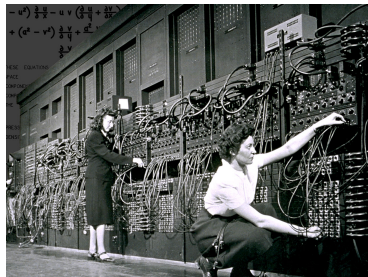- Analog Computers
  - Used for scientific purposes

Mechanical Computers

- Charles Babbage (1791-1871)
  - The "Father of the Computer"
  - Conceptualized a machine able to do generic computations
  - Programmed using punch cards
  - Involved actual moving parts and cranks
- Analog Computers
  - Used for scientific purposes
  - Had specific purposes: Solving Calculus problems, predicting tides, etc.
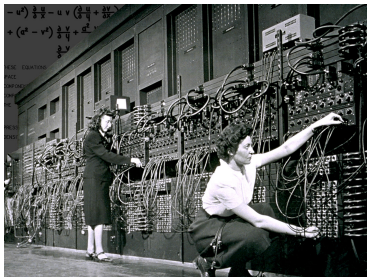
First Fully Electric computers
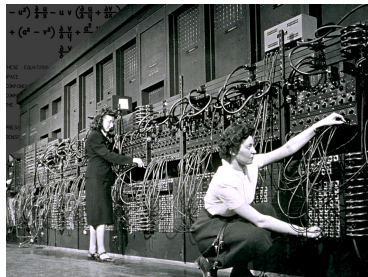
- Large devices that took up entire rooms

First Fully Electric computers

- Large devices that took up entire rooms
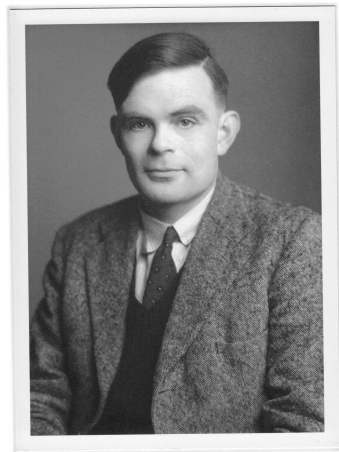- Used Vacuum Tubes, which were prone to break

First Fully Electric computers

- Large devices that took up entire rooms
- Used Vacuum Tubes, which were prone to break
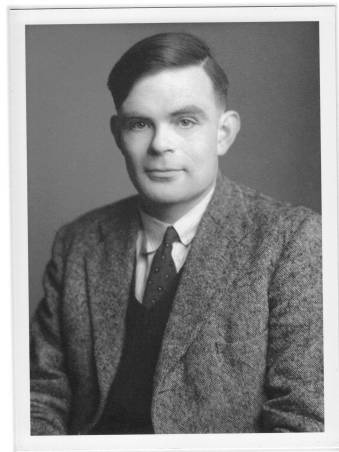- Programmed to perform various functions

Alan Turing

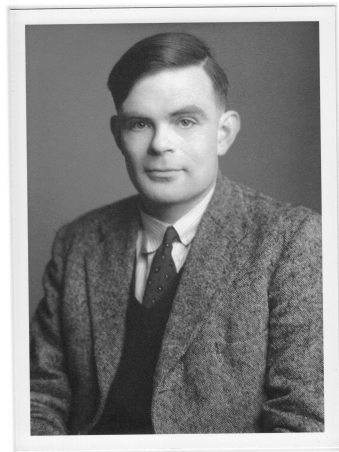- Key figure in computing, cryptography, and artificial intelligence

Alan Turing

- Key figure in computing, cryptography, and artificial intelligence
- Helped break German "Enigma" in WWII

Alan Turing

- Key figure in computing, cryptography, and artificial intelligence
- Helped break German "Enigma" in WWII
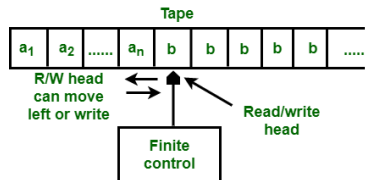- Created the Turing Test and Turing Machine

Turing Machine

- A programmable machine capable of executing any algorithm

Turing Machine

- A programmable machine capable of executing any algorithm
- Basis of modern computers

Turing Machine

- A programmable machine capable of executing any algorithm
- Basis of modern computers
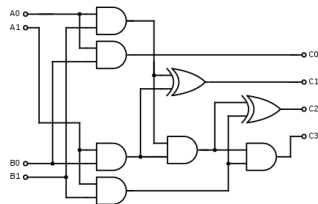- Proved both the power and limitations of computers
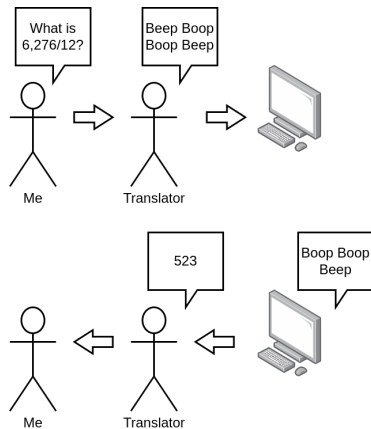
- Speaking to a computer is difficult

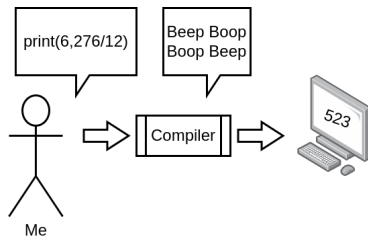- Speaking to a computer is difficult

Programming Languages

- Speaking to a computer is difficult
- What we need is a translator

Programming Languages

- Speaking to a computer is difficult
- What we need is a translator
- Compilers are translators

Citations I

📄 Merriam-Webster, "computer."