- Reference
    - https://www.youtube.com/watch?v=-M6lANfzFsM&t=129s

- 3000 BC
    - Chinese abacus was used for arithmetic calculations.
- 1642
    - **Blaise Pascal** created the first adding machine also known as the *Pascaline*
        - it can only add or subtract
- 1660
    - **Gottfried Leibniz** made his own machine that was able to perform the 4 different operations, it was not just limited to addition or subtraction.
        - also invented the binary system that represented numbers 0 and 1
    - A *base* is basically how many numbers are available in the numbering system.
        - base 2 contained 2 numbers only (binary)
        - base 10 contained the numbers 0-9 (decimal)
        - base 8 was commonly used to represent binary numbers in a shorter form (octal)
        - base 16 was used to represent colors (hexadecimal)
            - 10 decimal numbers(0-9) + 6 letters (A-F)
        - base 256 was able to store values from 0 - 255 and when was commonly used for encoding (e.g. ASCII)
- 1820
    - **Charles Babbage** widely considered as the Father of the Computer
    - In this year, he also created the difference engine
- 1830
    - Babbage then pursued to create the analytical engine
        - considered as the first programmable mechanical computer
        - programmed using punch cards
    - This marked the transition to fully-fledged general purpose computation
    - **Ada Lovelace** was known for her work on Babbage's machine
        - She's also considered as the world's first programmer
        - She made the algorithm for Bernoulli numbers
- 1890
    - **Herman Hollerith** made an electromechanical tabulating machine
        - marked the begining of data processing systems
        - founded a company that eventually became IBM
- 1936
    - **Alan Turing** created the universal machine which was capable of computing anything that is computable
    - modern computers are based from turing
    - **Konrad Zuse** made the first programmable computer
        - This computer used binary/boolean logic to make decisions
- 1937
    - **Howard Aiken** made IBM's Harvard Mark 1 calcualtor machine
        - inspired by babbage difference machine
    - **Grace Hopper** discovered the first bug, a moth that was stuck in a relay

        - coined the term 'debugging'

Vacuum Tube Era

- beginning of modern computing
- 1937-1942
    - **John Atanasoff** made the Atanasoff-Berry Computer (ABC)
        - first automatic electronic digital computer
- 1943
    - Colossus was made
        - world's first fully programmable digital computer
- 1946
    - Electrical Numerical Integrator and Computer (ENIAC)
        - first successful high speed digital computer
- 1950
    - **Von Neumann** made the Electronic Discrete Variable Automatic Computer (EDVAC)
        - first stored-program computer
        - 1000 instruction per second
    - also regarded as the father of computer virology
        - self-reproducing computer program

Mechanical -> Electromechanical -> Electrical(Digital)

Transistor Era

- 1947
    - first silicon transistor at Bell Labs
- 1954
- TRAnsistor DIgital Computer or TRansistorized Airborne DIgital Computer (TRADIC)
    - first transistorized computer
    - 800 transistors
- Fortran
    - first truly used language
    - **John Backus** at IBM
    - high level language
- 1949
    - assembly language was developed
        - low level language
- 1951
    - Jay Forrester invented the Random Access Magnetic Core Store
        - now known as the RAM
- 1952
    - **Grace Hopper** made the first computer compiler.
    - COBOL language was invented
- 1957 - IBM - first hard-drive - can only store 5 MB -

  Integrated Circuit Era
- 1958
    - **Jack Kilby** made the integrated circuit which consisted of many transistors in one chip

- 1964
    - Douglas Engelbart made the mouse
        - also worked on the first graphical user interface
    - BASIC
        - general-purpose high level language
- 1971
    - floppy disk
    - DRAM by intel
    - C
- 1965
    - Gordon Moore
    - prediction that computing power would double every 2 months
    - cost of computers is halved
    - computers would be so small that it can be embedded into homes, cars and phones