

BELLARMINE UNIVERSITY  
IN VERITATIS AMORE

**Abacus (2800 BC);**  
The Abacus was made to make Math easier in Europe, China, and Russia

**Antikythera Mechanism (150-100BC);**  
Used by ancient Greeks as a calculator to predict star positions

**Water Clocks (12th Century);**  
Al-Jazari created a design for a weight-driven water clock.

**Slide Rule (1622);**  
Created by William Oughtred to be a mechanical analog computer that supported calculus.

**Pascaline (17th Century);**  
Blaise Pascal created this to add numbers easily and proficiently

2800 BC - 17<sup>th</sup> Century

**Charles Babbage (1791-1871);**  
A polymath who worked in several areas including math, philosophy, astronomy, and engineering. He is best known for the difference engine and the analytical engine.

**Ada Byron, Lady Lovelace (1815-1852);** helped Charles Babbage on the Analytical Engine and wrote the first program. He is considered the world's first programmer.

**The Difference Engine;**  
A mechanical calculator designed by Charles Babbage in the 19<sup>th</sup> Century.

**The Analytical Engine;**  
Created to be a general-Purpose Computer. This device incorporated an arithmetic logic unit, control flow, conditional branching and loops.

**Concept of punched cards;**  
Joseph Jacquard developed this to manufacture textiles in the early 19<sup>th</sup> century.

**Hollerith Tabulating Machine;**  
Herman Hollerith was an inventor who developed a punched card machine that could do tabulations on large datasets. He sold his machine to the US government in 1890 so it could tabulate census data.

**Edith Clarke (1883-1959);** first woman to earn a degree in electrical engineering.

16th Century - 19<sup>th</sup> Century

**John von Neumann (1903-1957);**  
Key member of the Manhattan project and developed a model for computing that is still used for modern day computers.

**Grace Hopper (1906-1992);** computer scientist who worked on the Harvard mark1. she helped to design the first compiler.

**Alan Turing (1912-1954);**  
mathematician who developed the concepts of the Turing machine and the Turin test. Considered the founder of computer science and artificial intelligence

**Mary Kenneth Keller (1913-1985);** The first woman in the US to earn a Ph.D. in Computer Science. Founded the Computer Science department at Clarke University ].

**Claude Shannon (1916-2001);** he established the basis for communicating over a noisy channel. His thesis showed that Boolean Algebra could be done with electrical circuits.

**The Enigma Machine;**  
Used by the Germans during World War II to encrypt messages. It used a series of rotors and dials to set the encryption key.

## 1900 - 1929

**Edsger Dijkstra (1930-2002);** contributed to compiler construction, operating systems programming, and distribute programming.

**Barbara Liskov (1939);** one of the first women to get a PH.D. from Stanford. Formulated the Liskov Substitution Principle and won the Turing Award for doing so.

**ENIAC;**  
The Electronic Numerical Integrator and Computer was developed at the end of WWII to compute ballistics trajectories for mortar firing tables. It was originally programmed by 6 women and was the size of a room and weighed 27n tons.

**Clarence "Skip" Ellis (1943-2014);**  
First African American to earn a Ph.D. in Computer Science and elected to a fellow of the ACM. His team created Office Talk collaborative software.

**Steve Wozniak (1950) and Steve Jobs(1955-2011);**  
Started apple computer in 1976. Jobs was kicked out of apple in 1985 and returned as the CEO in 1997 until he passed in 2011. Wozniak left apple in 1985 and continued his degree then returned to technology.

**Radia Perlman (1951);**  
Developed the Spanning Tree Algorithm which vastly improved early Ethernet networks and made them viable to have large numbers of nodes of them.

**Carol Shaw (1955);**  
Carol Shaw was one of the first female video game designers.

**Tim Berners-Lee(1955);**  
Invented the World Wide Web while working at CERN. He designed and built the first web browser and web server.

## 1930 - 1955

**Paul Allen (1953) and Bill Gates (1955);** Started Microsoft in 1975. Allen left Microsoft in 2000 to pursue other opportunities and gates stepped down as chairman of Microsoft in 2014

**Mark E. Dean (1957);**  
A key member of the team that developed the ISA bus for IBM in the early 80's.

**Larry Page (1973) and Sergey Brin (1973);**  
Developed the pagerank algorithm which was the foundation of the google search engine.

**The Altair;**  
Ed Roberts developed this in 1975. this was a mail order machine and it included everything one needed to build a computer from scratch.

**The Apple I;**  
This was hand-built by Steve Jobs in 1975, as a device with 1 MHz MOS6502 processor with 4KB of memory and a graphics card that supported 40 columns by 24 rows of characters.

**IBM PC;**  
Under the direction of Don Eskridge, IBM created the 5150 model in 1981. it used off the shelf parts and was made cheaply.

**Linus Torvalds;**  
Developed the Linux operating system which is widely used on the internet to power web servers, database servers and other application servers.

## 1955 - Current