

History of Computer Science Timeline

Textbook

History of Computer Science

35,000 BC

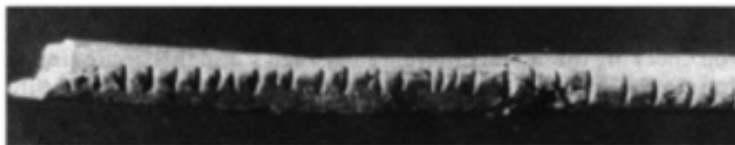


Image from historyofinformation.com

A tally bone was discovered in a cave between South Africa and Eswatini. It is the oldest known mathematical artifact. Tally marks were deliberately cut into a baboon's fibula, conjectured to document numbers, quantities and messages.

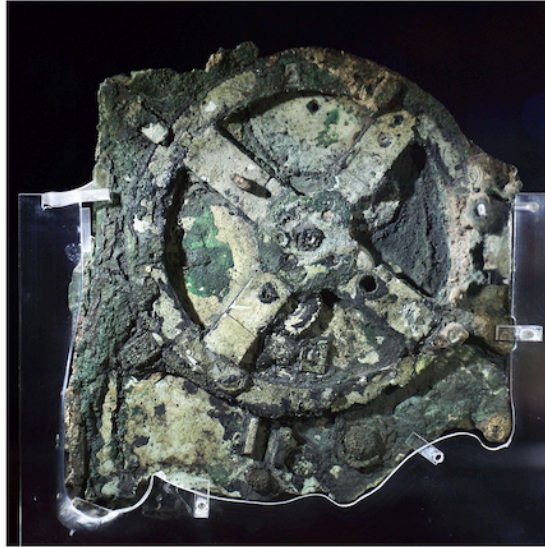
2600 BC



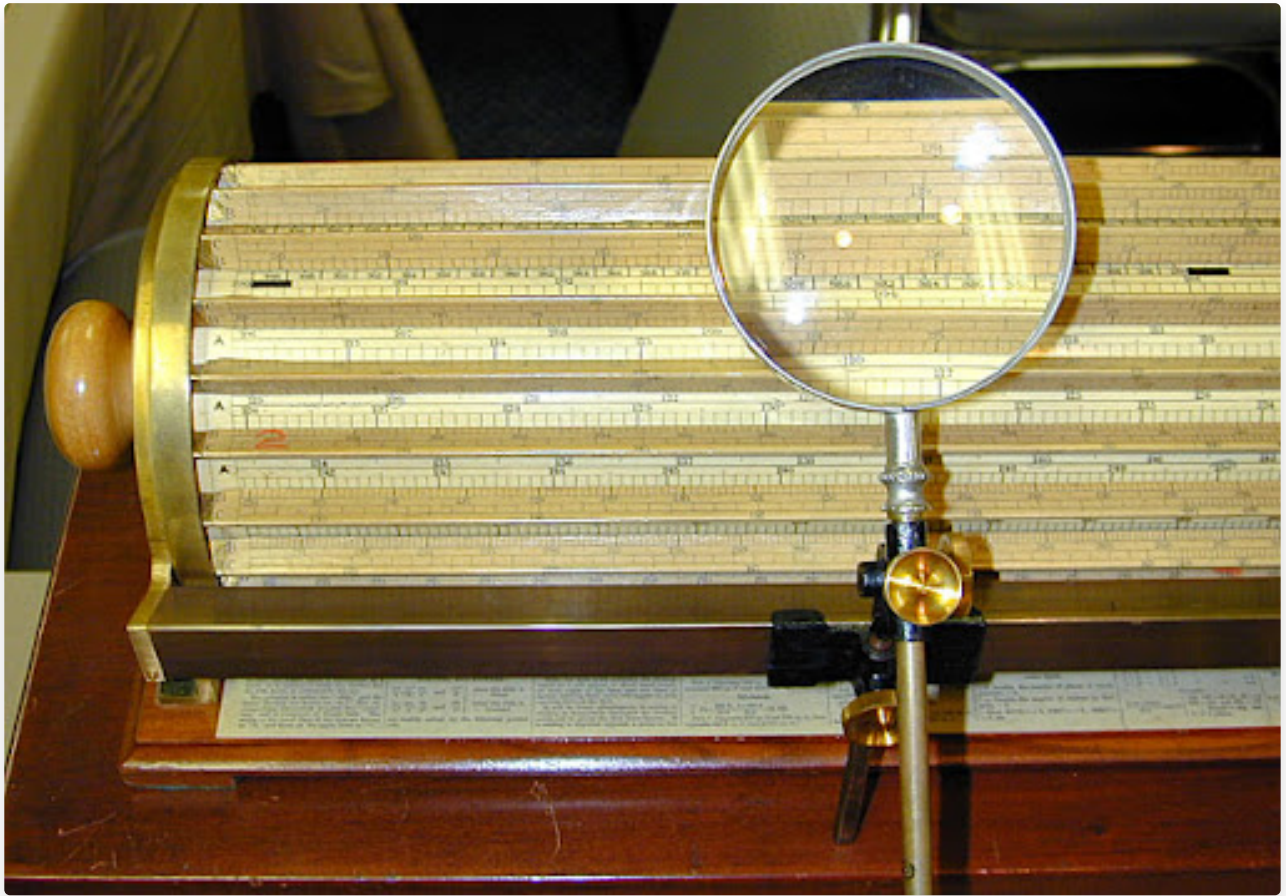
Image from historyofinformation.com

One of the earliest mathematical tables was discovered in Shuruppak, Sumeria (modern-day Iraq). Many of these stone tablets were excavated from old buildings that had burned in a large fire around 2600 BC. They have columns and rows used for calculating and multiplying and are similar to a modern-day spreadsheet.

200 BC



The Antikythera Mechanism was discovered in a shipwreck off the coast of a Greek Island. This interesting device dating back to the second century BC, had intricate gears and wheels that calculated the positions of the moon and stars with extreme precision. Many consider this to be the first example of a machine meant to help with calculations. In other words, a computer.



William Oughtred invented the slide rule—a device designed to help with mathematical calculations.



INVENTIONS ILLUSTRES

Carnot visitant les ateliers de Jacquard

Joseph Marie Jacquard in France needed a way to weave automatic fabric designs. He decided to use wooden punch cards to direct the threads where to go. Similar punch cards were used in later computer programming systems.

1832

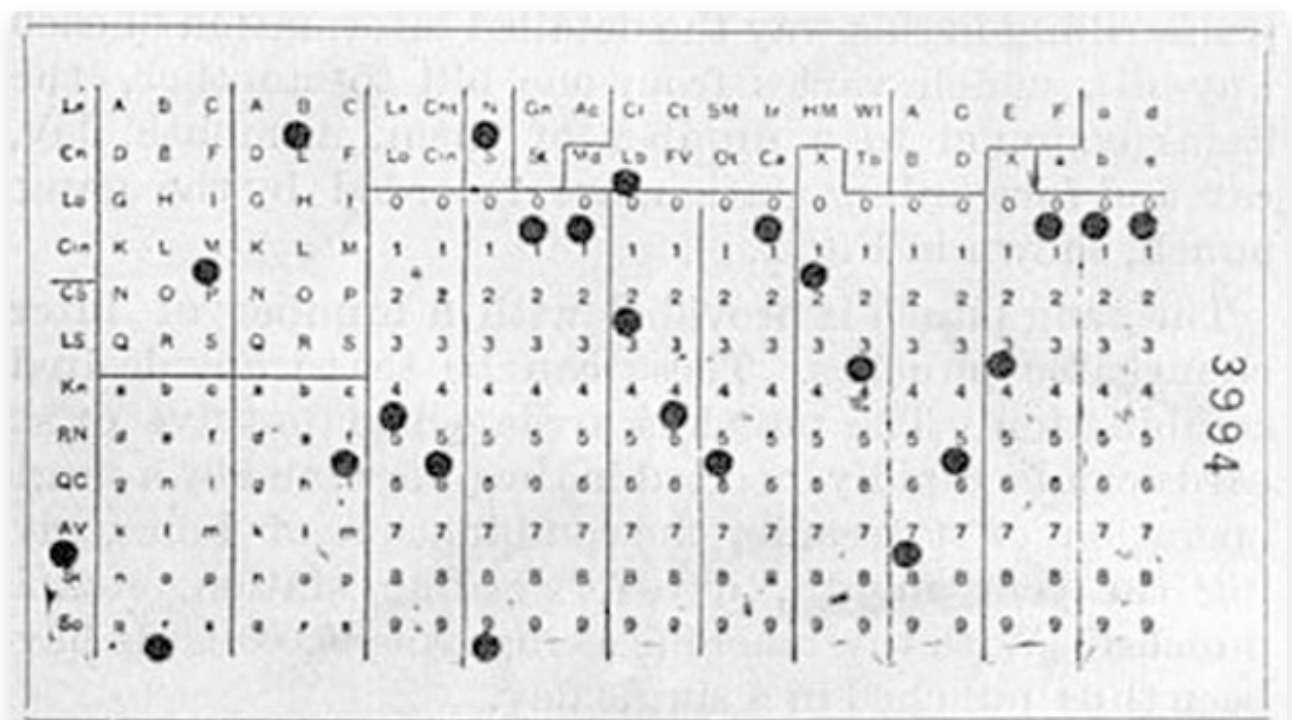
Charles Babbage invented machines called "The Analytical Machine and The Difference Machine" to automate arithmetic procedures.

1843



Ada Lovelace has been called "the first computer programmer." In her notes on Babbage's analytical engine, Ada Lovelace described how codes could be created for the device to handle letters and symbols along with numbers. She also theorized a method for the engine to repeat a series of instructions, a process known as looping that computer programs use today.

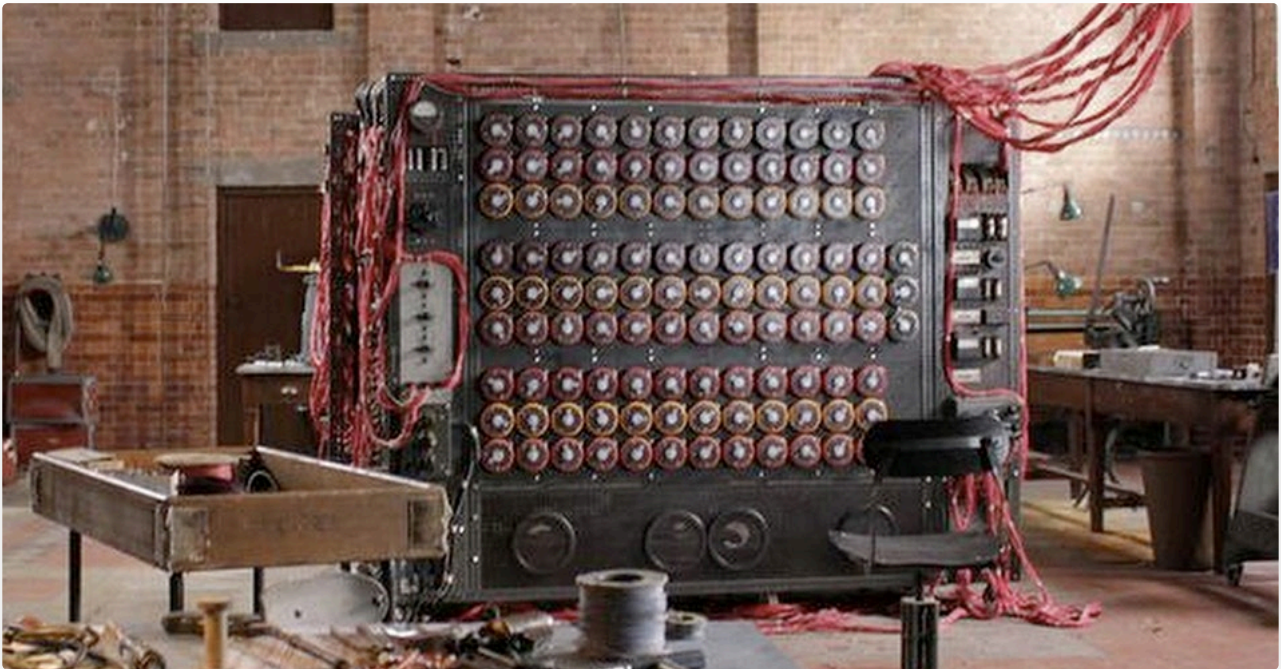
1890

A photograph of a single punch card from the 1890 census. The card is a grid of letters and numbers with holes punched in specific positions. The letters are arranged in columns, and the numbers are arranged in rows. The card is labeled with '3994' on the right side.

	A	B	C	A	B	C	L	C	H	N	G	A	C	C	S	M	I	H	M	W	A	G	E	F	a	d
C	D	E	F	D	E	F	L	C	H	N	G	A	C	C	S	M	I	H	M	W	A	G	E	F	a	d
L	G	H	I	G	H	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	K	L	M	K	L	M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C	N	O	P	N	O	P	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
L	Q	R	S	Q	R	S	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
K	T	U	V	T	U	V	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
R	W	X	Y	W	X	Y	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q	Z	[]	[]	Z	[]	[]	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
A	[]	[]	[]	[]	[]	[]	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
S	[]	[]	[]	[]	[]	[]	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
E	[]	[]	[]	[]	[]	[]	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

Herman Hollerith thought of a faster way to calculate the 1890 census. Using a system of punch cards, he was able to accomplish it in only 3 years which saved the government \$5 million dollars. His company would go on to become IBM.

1936

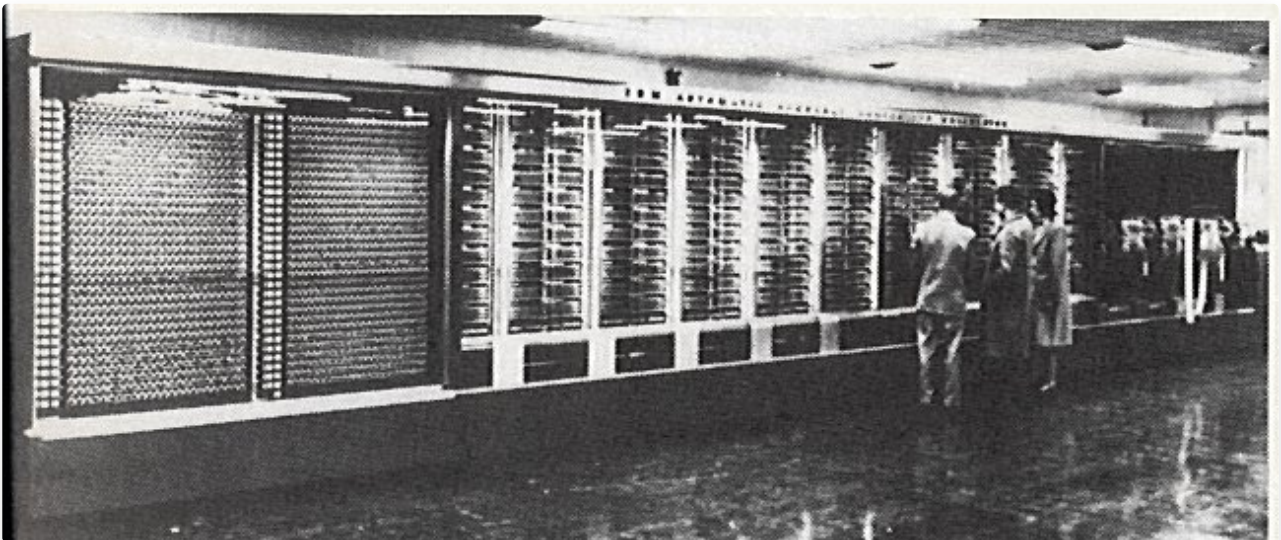


Alan Turing developed machines that helped to decipher code in World War 2. His efforts helped figure out the famous Enigma Machine used by the Germans. He invented the [Turing Machine](#), which is what modern computers are based off of.

1941

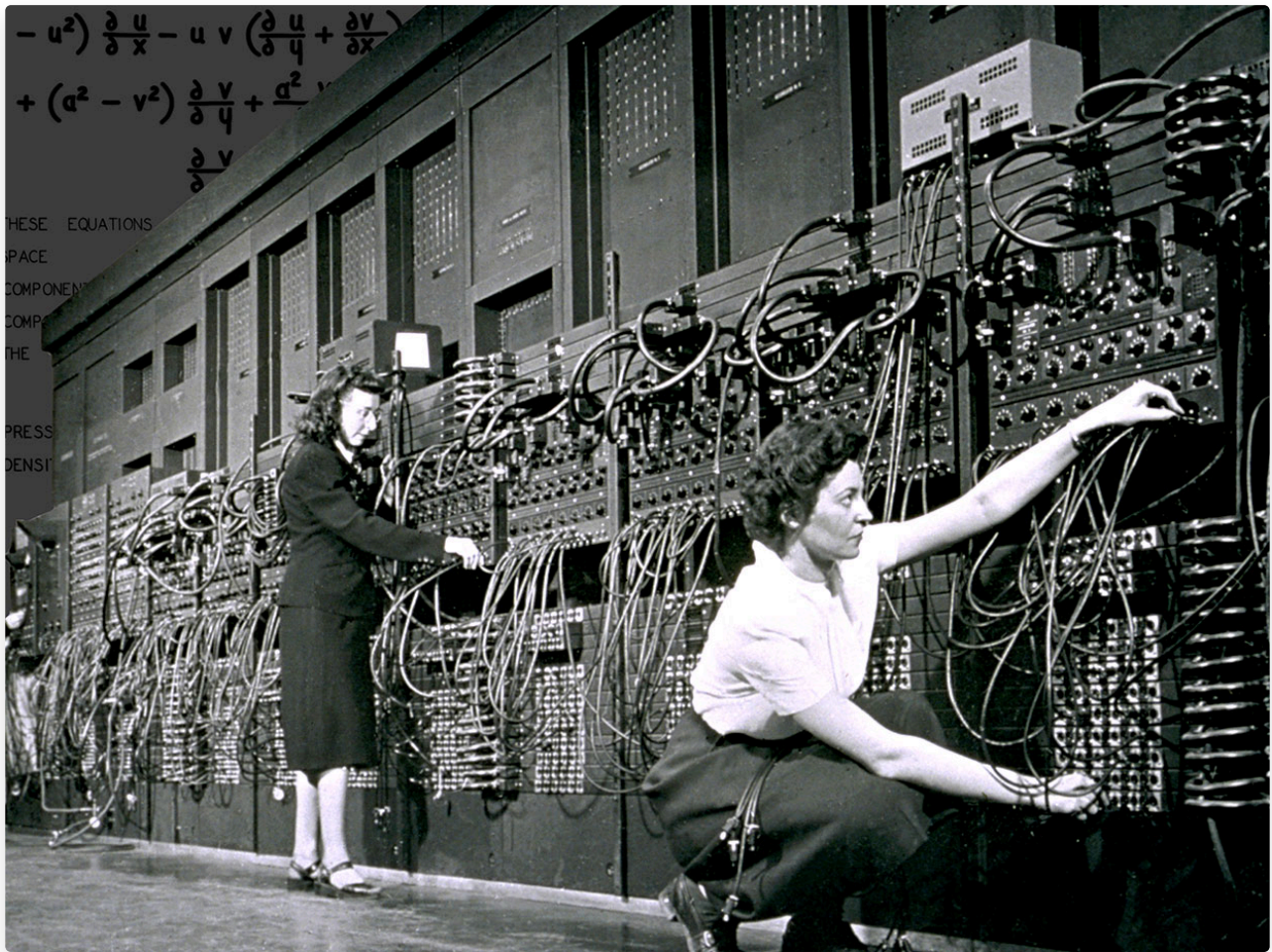
Clifford Berry and his teacher Atanasoff invented a computer that can compute 29 things at once. This was the first computer that was able to store information in a kind of memory base.

1943



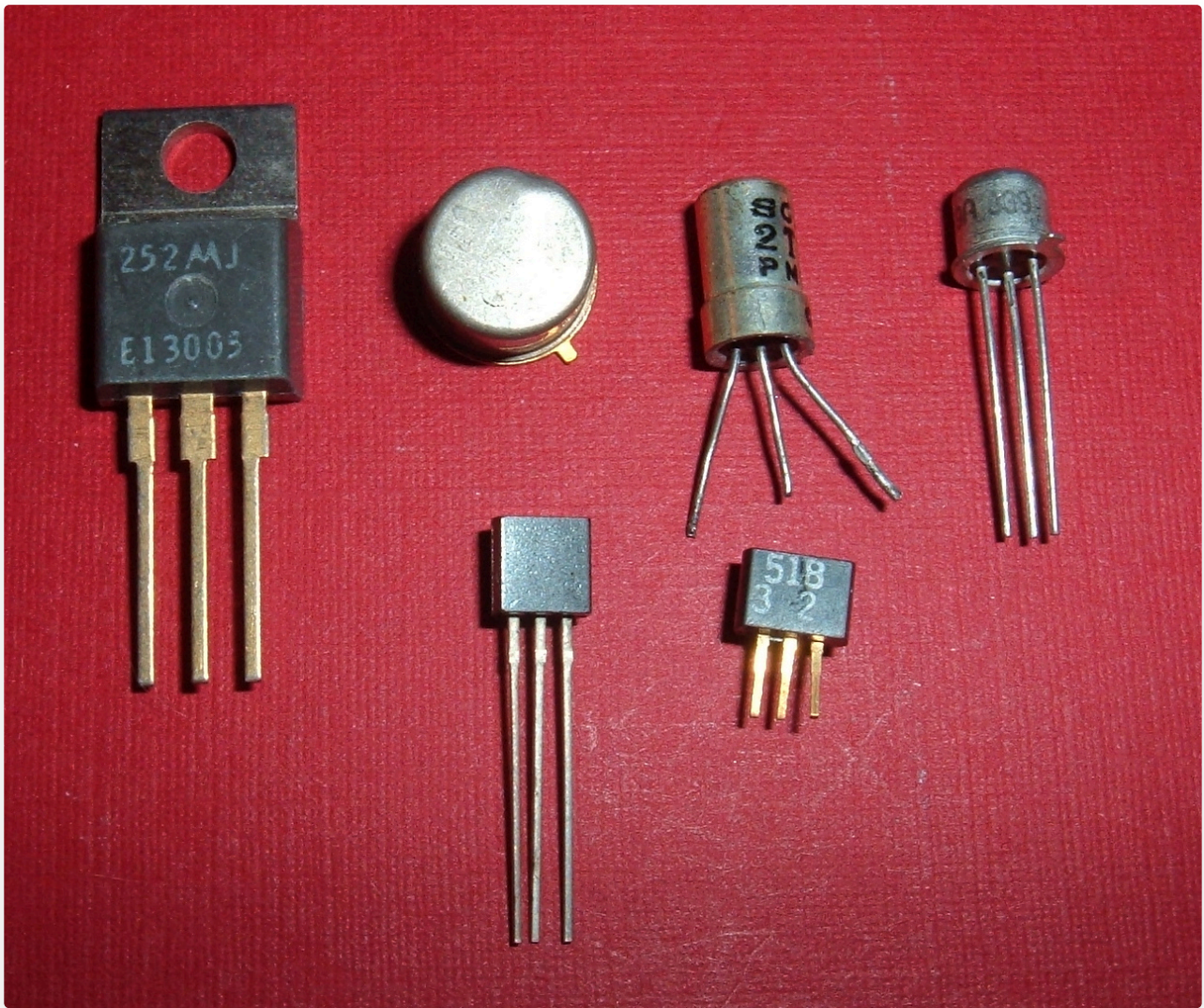
Howard H. Aiken and his team completed the "ASCC Mark I" ("Automatic Sequence-Controlled Calculator Mark I"). The machine was 51 feet long, 8 feet high, weighed 5 tons, and incorporated 750,000 parts. It was the first binary computer built in the U.S. that was operated by electricity.

1944



John Mauchly and J. Presper Eckert built the Electronic Numerical Integrator and Calculator (ENIAC) in an effort to help the US Army Ballistics Laboratory. This machine that paved the way for modern computers filled a 20-foot by 40-foot room and had 18,000 vacuum tubes. These vacuum tubes were thought to be able to speed up computation power. It was believed that ENIAC had done more calculation over the ten years it was in operation than all of humanity had until that time.

1947



John Bardeen, William Shockley, and Walter Brattain invented the [transistor](#). These electric switches didn't need a vacuum and are still used in computers today.

1948

The first computer program was run on a computer. Their first program, consisting of seventeen instructions and written by Frederic Williams, Tom Kilburn, and Geoff Toothill was the first program in history to run on a digital, electronic, stored-program computer.

1949



Trevor Pearcey designed the SCIRAC which was a computer that used 12-hole paper tape to perform calculations.

1953



Grace Hopper invented the first computer language, which eventually became known as COBOL. Grace Brewster Hopper was an American computer scientist, mathematician, and United States Navy rear admiral.

1957



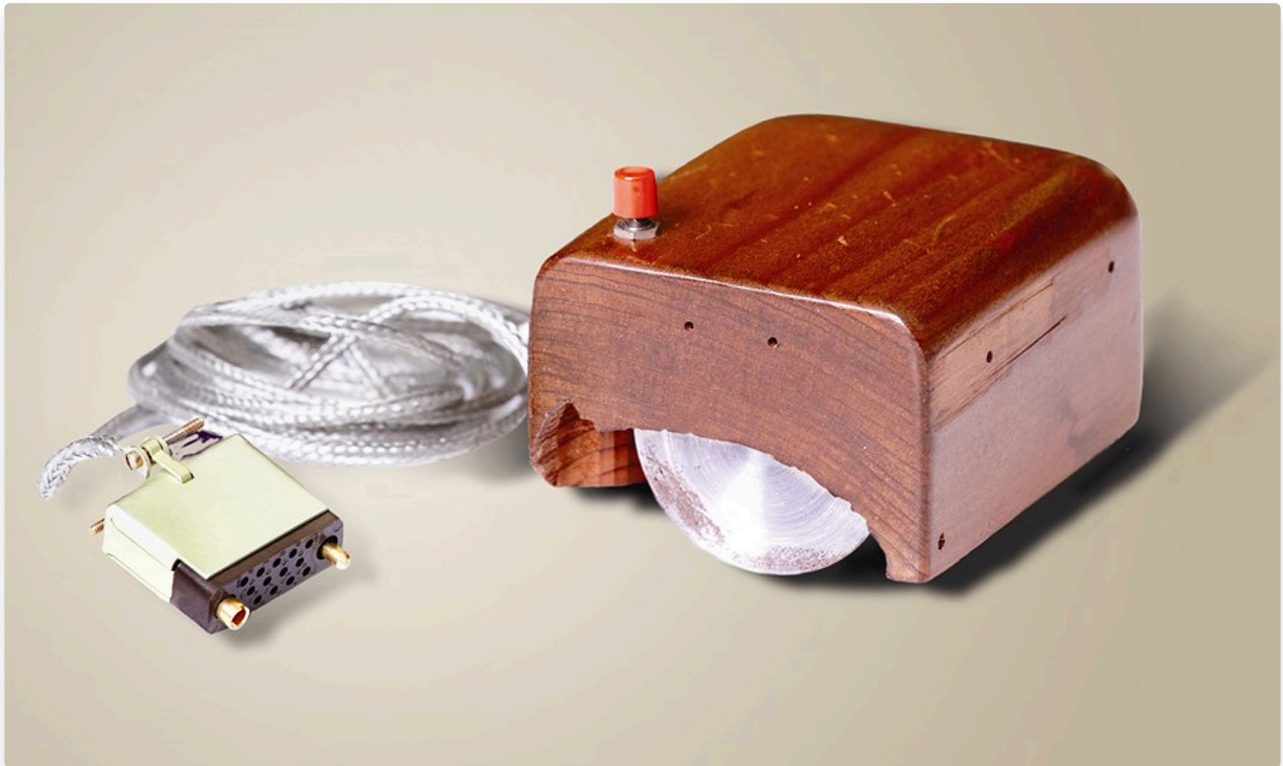
Katherine Johnson was a mathematician that worked with calculations to help send Americans into space.

1955-1989



Annie Easley, a computer programmer at NASA from 1955 to 1989, was important to the development of energy-conversion systems. She specialized in researching alternative power technology, notably creating code that was later used in the development of early hybrid vehicles and the Centaur upper-stage rocket. Easley also made significant contributions in promoting equal rights and opportunities within her workplace as an African American Woman.

1963



Doug Engelbart invented the computer mouse, first called the X-Y Position Indicator.

1964

Douglas Engelbart showed a design for the modern computer, with a mouse and a graphical user interface (GUI). This meant that a computer could be usable by all kinds of people rather than just a tool for mathematicians or scientists.

1965



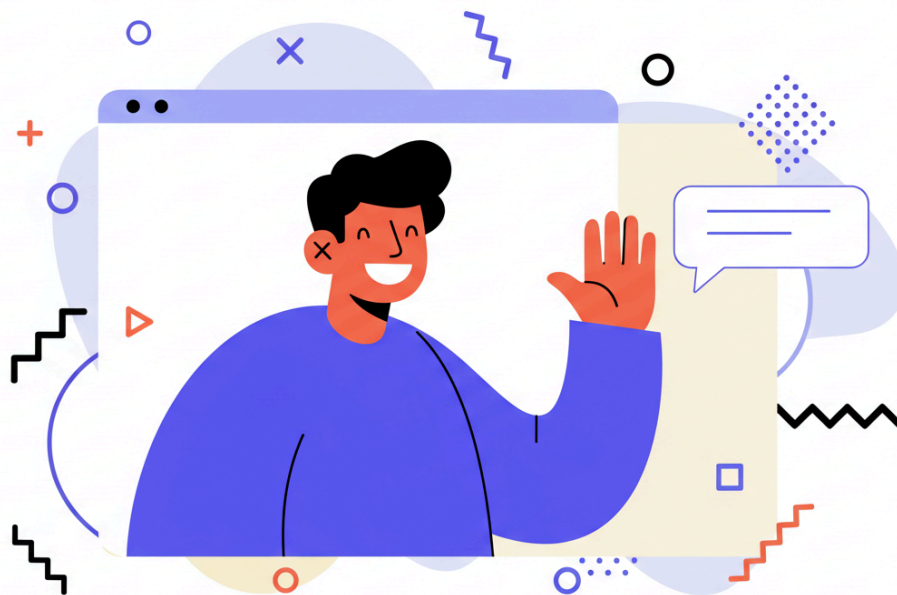
Sister Mary Kenneth Keller, who received the first US PhD in Computer Science in 1965, was a pioneer in advocating learning-by-example in artificial intelligence and significantly shaped computer science education in high schools and small colleges. She passionately advocated for computer literacy for all, the use of computers in service to humanity, and worked tirelessly to ensure a place for women in technology by eliminating barriers like poor access to education and daycare.

1970



In the 1970s, Radia Perlman was a female mathematician and engineer who was important to the creation of the Internet. She developed the Spanning Tree Protocol, an innovative solution to a complex data routing issue, earning her the title of "Mother of the Internet."

1971



Alan Shugart and a team of IBM engineers invented the "floppy disk." This meant that information could be stored and easily shared among computers.

1972



Karen Spärck Jones was a British computer scientist known for her work on information retrieval and natural language processing. She is famous for introducing the concept of inverse document frequency, a foundational concept in the field of search engine ranking (domain name protocol).

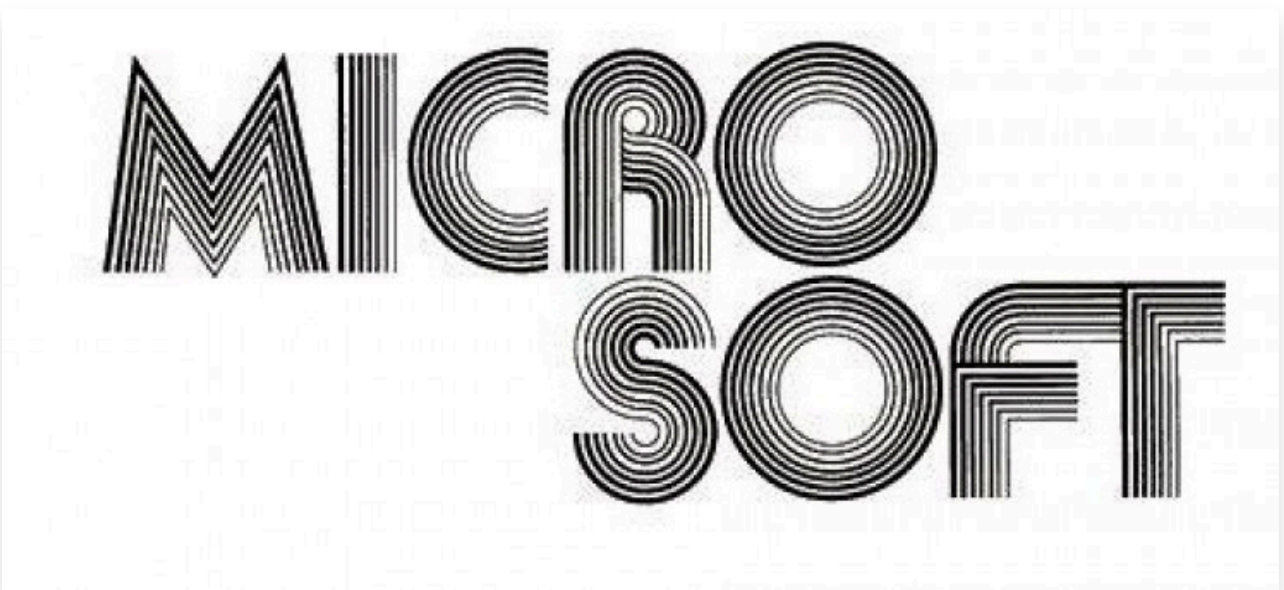
1972

Ray Tomlinson, author of first email software, chose @ sign for email addresses.

1973

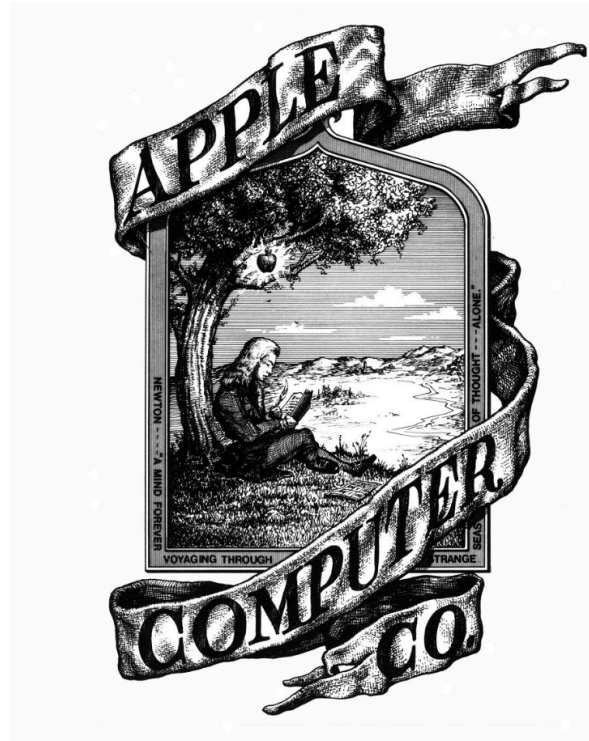
Robert Metcalfe invented Ethernet which meant that multiple computers could connect to each other and communicate directly.

1975



Bill Gates and Paul Allen started a new company and named it Microsoft.

1976



Steve Wozniak and Steve Jobs started a company named Apple Computers.

1977

Apple Computers rolled out Apple II, which had color graphics and an audio cassette tape to store information.

1979

The first word processor was developed by MicroPro international.

Kevin MacKenzie invents the emoticon :-)

1981



Image from cybersecureria.com

Mark E. Dean, a notable American inventor and computer engineer developed the ISA bus and led a design team for creating a one-gigahertz computer processor chip. He holds three of nine PC patents for being a co-creator of the IBM personal computer. In 1995, Dean was honored as the first ever African-American IBM Fellow. His innovative contributions to personal computer development earned him a membership into the National Academy of Engineering in 2001.

1980–1983



Apple, Microsoft, and IBM developed home computers for personal use that could be purchased and used by anyone. Think about it, personal computers are only 40 years old!

1984

The domain name system (DNS) was established for different web sites.

1985



CD-ROM technology (disk and drive) for computers was developed by Sony and Philips.

1988

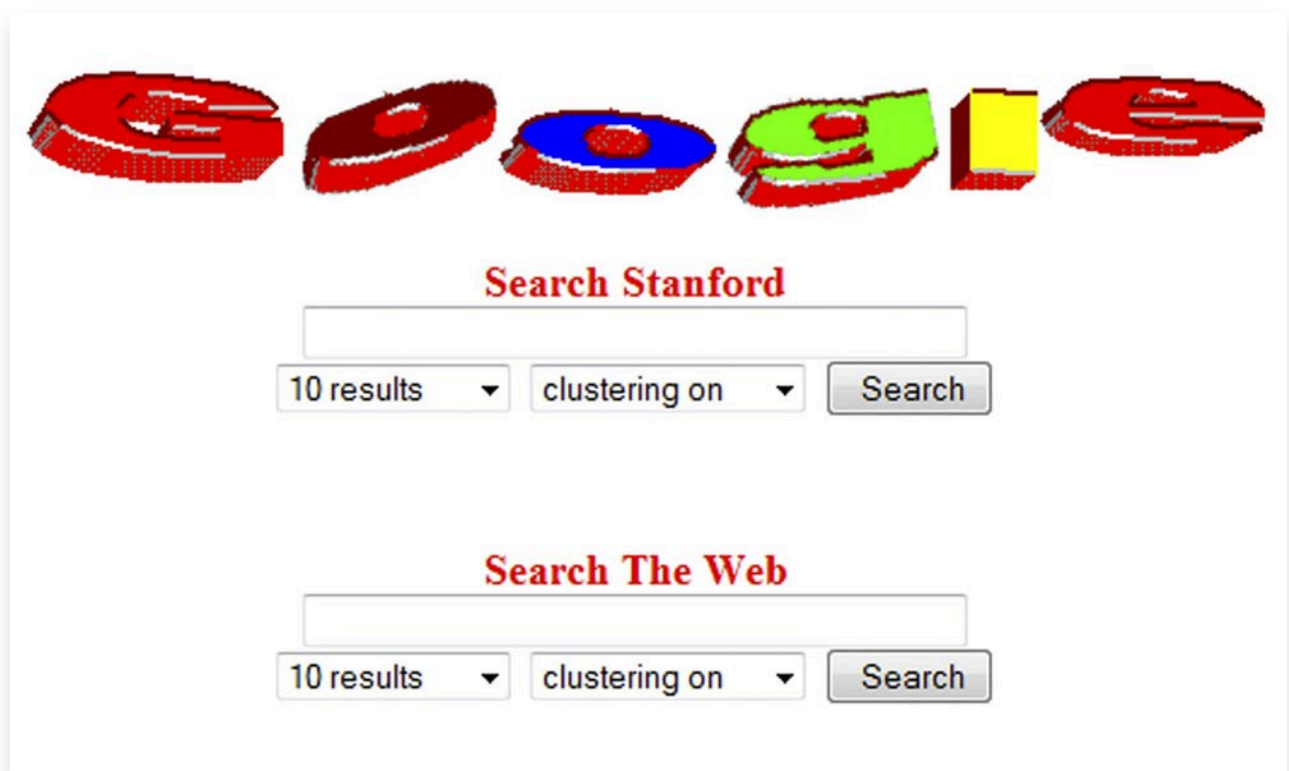


Sanjay Mehrotra, an Indian-American, co-founded SanDisk. He is now the current CEO of Micron Technology.

1990

Tim Berners-Lee developed HyperText Markup Language (HTML), the language used to write most modern webpages. This led the way to creating the World Wide Web.

1996



Larry Page and Sergey Brin of Stanford University invented the Google search engine.

1997

The year Vic Hayes lays essential groundwork for what will become Wifi.

2004

Facebook, a social networking site, launched. Mozilla's Firefox 1.0 challenged Microsoft's Internet Explorer, the dominant Web browser.

2005

Google acquired Android, a Linux-based mobile phone operating system. YouTube, a video sharing service, is launched.

2006

Apple introduced the MacBook Pro, its first Intel-based, dual-core mobile computer.

2007



Apple introduced the iPhone. This led the way for phones to have many characteristics of computers. These "smartphones" led to the rise of widespread personal devices.

2007



Indian-American Shantanu Narayen became the CEO of Adobe.

2010

Virtual Reality possibilities became more mainstream.

2011

Google released the Chromebook, a laptop that runs the Google Chrome OS.

2015

Apple released the Apple Watch, a smartwatch.

2020



Apple released the iPad Pro.



Safran Catz is an Israeli-American CEO of Oracle, one of the largest software companies in the world.

2030

What do YOU think will happen in the computer science world? How will technology affect different aspects of our lives? How will technology affect the following fields?

Music

Medicine

Conservation

Energy

Art

How do you think computational innovations will revolutionize aspects of our culture?

Questions (1)

1. Did you read the material?

MULTIPLE CHOICE

Choose the correct answer:

A. Yes

B. No

Answer Keys & Solutions

Questions

1. Did you read the material?

MULTIPLE CHOICE

Correct Answer:

- A. Yes

✓ Correct
- B. No

✗ Incorrect