From ENIAC to iPad: Moments from IT history

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In the beginning...

- ...depends on whose account to believe :)

- Still, pretty soon afterwards, some hairy dude started to compute using sticks and stones

- The abacus existed in Ancient Egypt in about 3000 BC (some suggest even 3500 BC)

A tad later...

- Around 1500 AD – Leonardo's arithmometer (addition only; disputed)

- 1623 – Wilhelm Schickard of Tübingen builds a calculator reportedly able to add and substract six-figure numbers

- 1640 or 1645 – young Blaise Pascal aims to help his father (a clerk), building the Pascaline or 'arith-metical machine' (all four main arithmetical operations)
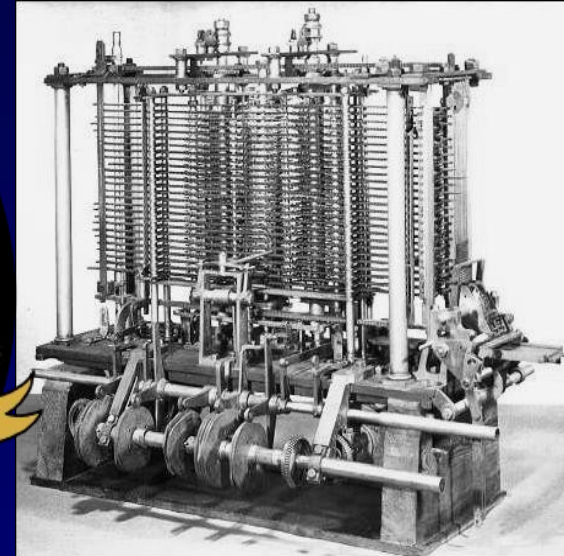
Some more time...

- 1632 – William Oughtred from Oxford builds the slide rule (the window was added in 1859 by Amedeè Mannheim)

- 1705 – G. Leibniz introduces binary numbers

- 1800/1801 – the Jacquard loom, an early programmable industrial machine

- The Babbage projects:

  - Difference Engine 1822

  - Analytical Engine 1830

The Babbage machines

Difference Engine
(reproduction at British Science Museum)
(source: https://www.kerryr.net/pioneers/gallery/babbage.htm

Analytical Engine (idea)

Before the modern computer

- 1857 – Sir Charles Wheatstone invents the telegraph tape

- 1874/78 - Willgodt Odhner builds an arithmometer - later known as "Felix"

- 1889 – Herman Hollerith patents the tabulating machine later used in the U.S. 1890 census

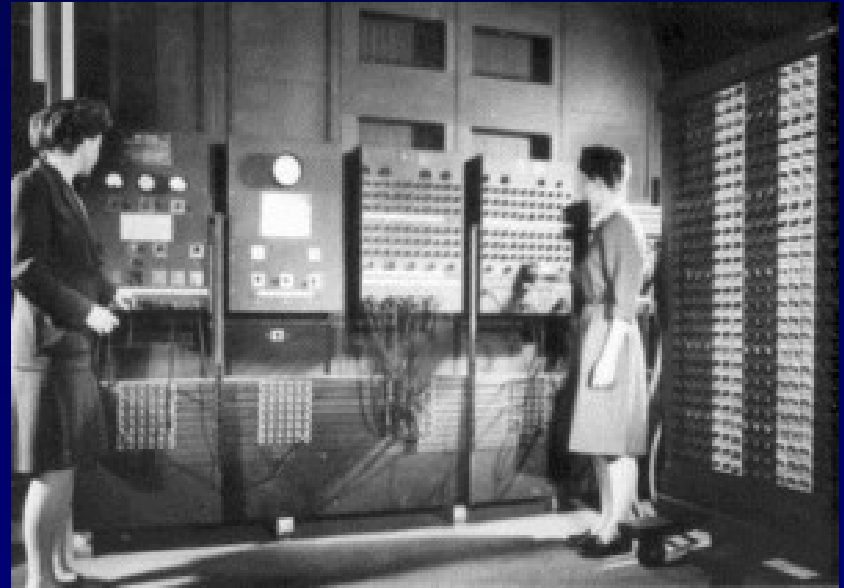- 1926 – transistor invented at Bell

- 1936 – Dvorak keyboard

Swedish and Estonian (unofficial) versions of the Dvorak keyboard
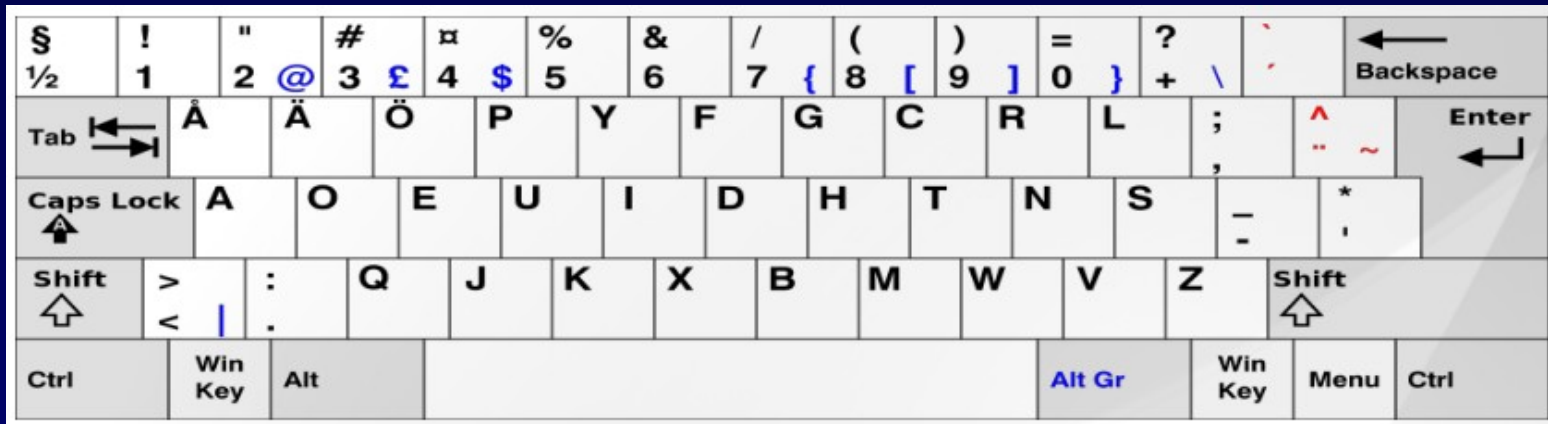
The first?

- There are four common candidates to the title of the first electronic computer

- The most known: ENIAC (Electronic Numerical Integrator and Computer) - John Mauchly and J. Presper Eckert, Univ. of Pennsylvania 1943
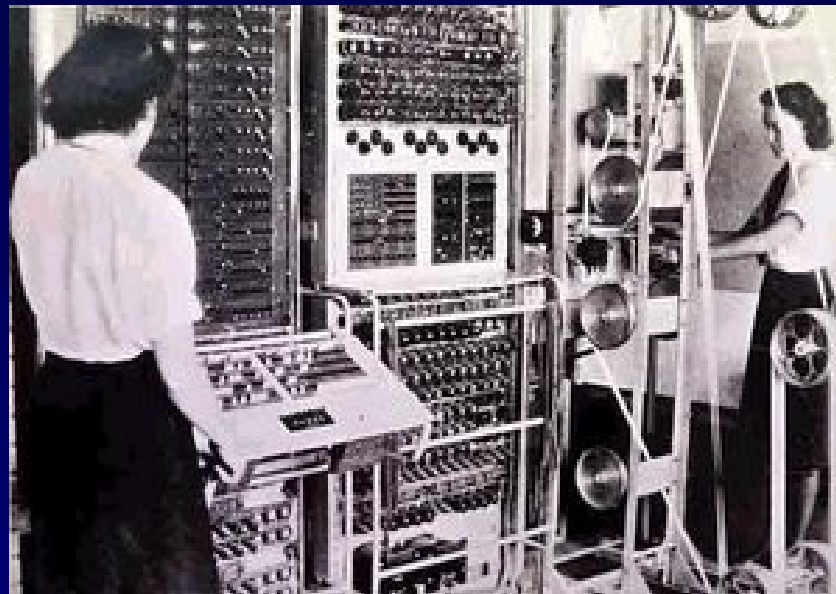
Or…?

- ABC (Atanasoff-Berry Computer)
  - John Vincent Atanasoff &
  Clifford Berry, Iowa State
  College 1943

- ABC won the 1973 court case, yet the issue is still disputed

Or rather…?

- Colossus and bombes -
  Alan Turing & Co,
  Bletchley Park, UK 1943

- Earlier than the previous two, but being the "real computer" is still contested

Or even…?

- The works by Konrad Zuse in Nazi Germany starting in 1936 (Z1, Z2, Z3). Binary!

- Zuse's Plankalkül programming language is a strong contender to the title of the first modern programming language (contained most elements of the later ALGOL)

The Stone Age

- 1945 – EDVAC, the binary computer (some consider it the first)

- 1945 (47?) - Grace Murray Hopper finds a bug

- 1948 – UNIVAC I, the first commercial computer.
  Bell Labs patents the transistor

- 1950 – MESM, the first Soviet computer.
  Turing test formulated by Alan Turing

- 1954 – transistors mass-produced

- 1956 – TX-O, the first transistor computer

- 1958 - Texas Instruments introduces integrated circuits

MIT TX-0 Transistorized Computer Built in 1955, Operational in 1956
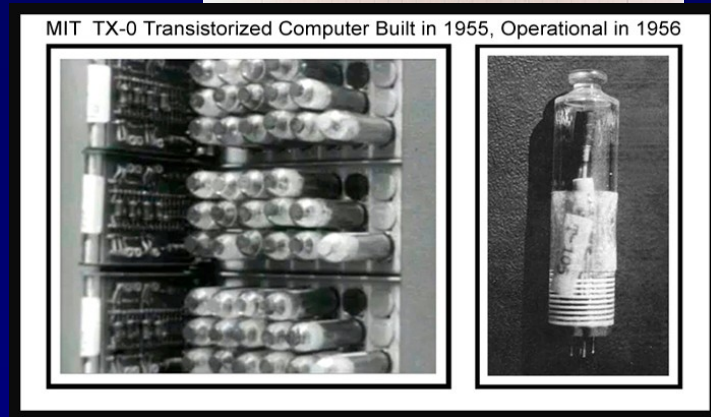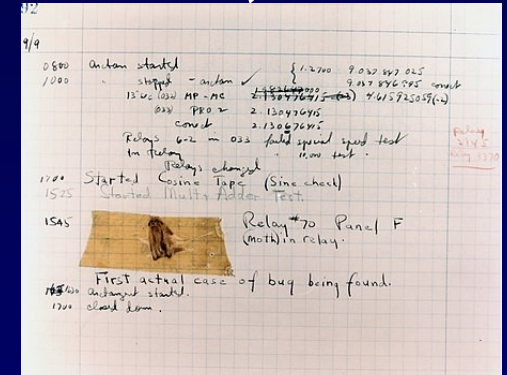
Example: IBM 650 (1954-62)

- Weight of computer: 900+ kg

- Weight of power supply: 1350 kg

- Both had boxes of 1.5 x 0.9 x 1.9 m

- Approx. cost 500 000 USD (of the time!), monthly rent 3500 USD

- Drum memory for up to 2000 words with length up to 10

Sixties

- 1963 - Douglas Engelbart patents the computer mouse

- 1964 – BASIC born at Dartmouth College. First DEC minicomputer PDP-8

- 1966 – first disk drive (IBM)

- 1967 – first floppy disk (IBM)

- 1968 – First GUI developed by D. Engelbart in Stanford. Intel founded

Summer of '69

- AMD founded

- Unix born at AT&T

- Laser printer developed at HP

- Birth of Internet usually set to this year

- Plus

  - Man on the Moon

  - Linus Torvalds born in Helsinki :)

Seventies

- 1971 - 8-inch diskette by IBM.
  Niklaus Wirth creates Pascal

- 1972 - Intel 8008, the first 8-bit chip (200kHz).
  Atari Pong. William H. Gates and Paul Allen start
  Traf-O-Data. The first chat between ELIZA and Parry

- 1973 - Gary Kildall develops CP/M based on PL/M.
  Bob Metcalfe's thesis on Ethernet. IBM 3340
  "Winchester" disk

https://www.ibm.com/ibm/history/
exhibits/storage/storage_3340.html

- 1974 – Dennis Richie completes C language (started 1969)

- 1975 - Gates and Allen create Altair BASIC for MITS Altair and start to sell licenses
  – birth of Microsoft. Byte Magazine and Computer Store (the first dedicated
  store chain) indicate some mainstreaming

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- 1976 - Steve Jobs and Steve Wozniak found Apple and sell the 'kit computer'. Intel/AMD compatibility deal. An Wang's Text Processor. Xerox Note-Taker, the first portable (so-and-so; luggable?) computer

https://www.computerhistory.org/revolution/mobile-computing/18/316/1689

- 1978 - Intel introduces the 4.77-MHz 8086 chip

- 1979 – VisiCalc, the first spreadsheet. First laser printer by IBM

Eighties

- 1980

  – MS XENIX OS (in fact, Microsoft's Unix)

  – Microsoft-IBM deal to provide them with (then non-existing) operating system – a suitable candidate is found at Seattle Computer Products, named QDOS (Quick-And-Dirty Operating System). Somehow, it ends up with Microsoft

  – Sony introduces the 3.5-inch floppy and Seagate the 5.25-inch hard disk

  – CD audio standard (Philips, Sony)

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- 1981 - MS fully obtains QDOS, renaming it to MS-DOS. IBM 5150 becomes "The PC". Novell creates the first networked filesharing system (later evolving to NetWare). Silicon Graphics founded. Osborne 1, the first laptop (sort of)

- 1982 - IBM switches PCs from CP/M to MS-DOS 1.1. "The Clone Wars". The PC Mouse from Mouse Systems. Intel 286 (6MHz). Sun and Adobe founded. SunOS 1.0 (later becoming Solaris)

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- 1983 - IBM PC XT, Apple IIe and Lisa (Macintosh?). First prototypes of MS Windows. Borland, Compaq and Electronic Arts. An Wang introduces SIMM memory module. Bjarne Stroustrup develops C++. Multi-Tool Word, WP 3.0 and Lotus 1-2-3. Richard Stallman starts GNU

- 1984 - IBM PC AT and EGA video. First CD-ROM by Philips. HP LaserJet 1. X Window System written in MIT and Tetris in Moscow (Alexey Pajitnov on Elektronika-60)

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- 1985 - official Windows 1.0. Steve Jobs founds NeXT

- 1987 - Sun SPARC, PC 386/20. Windows 2.0 and Win/386. MS and IBM cooperate on OS/2. VGA graphics

- 1988 - 386DX and SX chips. SCSI specification. HP DeskJet inkjet printers. Creative Labs founded (the makers of SoundBlaster sound cards)

- 1989 – PCMCIA extension card standard for laptops (ruled the pre-USB era)

Nineties

- 1991 – Business ban lifted on Internet. A guy named Linus - "a new Unix-like operating system". Microsoft fuses Windows to OS/2 know-how and gets NT 3.0. SunOS becomes Solaris. PCI bus standard. First colour scanner from HP

- 1992 - Win 3.1. Bill G. becomes the wealthiest person in the US

- 1993 - Intel Pentium. CD-R by Pinnacle Micro. MS NT 3.1. Plug-and-Play. FreeBSD, OpenBSD and NetBSD

- 1994 - Win 3.11, NT 3.5 (workstation + server) and the final MS-DOS - 6.22. Netscape 1.0. IBM, Apple and Motorola conspire against MS. ZIP disk from Iomega. The Pentium bug in 2 M chips. First working draft (0.7) of USB

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- 1995 – The Browser Wars start (MS proposal to Netscape). Intel P6 (Pentium Pro). MS Win 95, Office 95 and NT 3.51. First DVD-s

- 1996 – Office 97 and NT 4.0. First usable IE - 2.0

- 1997 – first monopoly-related court cases for MS

- 1998 - Pentium II, Win 98. Netscape gets bought by AOL. Browser source opened → Mozilla etc. iMac brings Apple to profit again. USB 1.1. The dotcom boom. Symbian appears on mobile devices.

- 1999 - Pentium III and Athlon. MS court battles go on. Win 2000

- 2000 – Chips pass 1GHz. Win ME. DivX. WordPerfect Office for Linux. USB 2.0. DVD drives spread. No Apocalypse...

The new century

- 2001 – Chips pass 2 GHz. MS Windows XP, Office XP and "Licensing v6" aka "your software is not yours". Linux starts to challenge Windows in some places. OS X lifts Apple up again. Openoffice.org created from StarOffice.

- 2002 - Wireless boom. Intel Macs. Developing countries discover FLOSS. In Estonia, an arrogant campaign by BSA creates many new Linux users. The next Windows started (planned for 2003)

- 2003 – Skype born in Tallinn, also a short-lived GPRS network boom. Linux kernel 2.6 takes a big step ahead. Windows Server 2003 (but no Longhorn/Vista yet)

• 2004 - Software patent wars in EU. New cheaper broadband. Cybersecurity problems widen, emergence of Internet racket and other "user hacking" phenomena. Mark Shuttleworth, Canonical and the first Ubuntu (4.10)

• 2005 - Software patents defeated in Europe. Ubuntu takes the Linux world by storm. Google buys a small company named Android Inc. and launches YouTube

• 2006 – another patent war in EU (defeated again), Microsoft cooperates with Novell (Linux users alarmed). OLPC by Nicholas Negroponte. MacBook Pro and iMac from Apple. Vista is still delayed

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- 2007- Windows Vista and MS Office 2007. April riots and cyber attacks in Estonia. SCO defeated in court. The worst competitor for Vista is… XP . Open Handset Alliance founded by Google

- 2008 - MS OOXML vs ODF document wars, MS announces ODF support in Office 2007 SP2. Bill Gates gives up full-time work in Microsoft. XP finally drawn from the market (after several extensions), Vista gets increasingly compared to WinME. The Georgian War with a lot of cyberattacks. Apple creates iPhone OS (later iOS), iPhone is a huge hit

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- 2009 - Microsoft releases Windows 7. Rise of Android, fall of Symbian (~75% smartphone market a year before!). Bitcoin introduced.

- 2010 - Apple iPad defines the tablet. Denmark mandates free file formats in government. Microsoft CodePlex, a FLOSS-like code repository. Oracle obtains Sun, free projects forked (LibreOffice, MariaDB). Android becomes No 1 in mobile systems

- 2011 - Windows XP finally drops under 50%. Microsoft partners with Nokia. Death of Steve Jobs. New GUIs in Linux distros (Unity, Gnome 3) get a lot of criticism. First LibreOffice (3.4)

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- 2012 - Quad-core chips. Microsoft introduces Windows 8 and Surface. Samsung-Apple duel. Linux Mint passes Ubuntu in the desktop Linux world (largely due to MATE and Cinnamon). Facebook reaches 1 billion users. Still no Apocalypse…

- 2013 - Cloud, Big Data and infosec. Windows 8 continues the trend "every second Windows version is (somewhat) usable". End of MSN. Steve Ballmer resigns from MS. Google Chrome becomes the top web browser

- 2014 - Year of Big Bugs (Heartbleed, Shellshock, POODLE). Steam returns Linux as a gaming platform. The world is restless (Ukraine and others), cybersecurity rules

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- 2015 - Windows 10 released (for many, for free) – but manages to raise so many privacy issues that many people consider moving away. Apple Watch is another huge success for Apple

- 2016 - Windows 10 reaches the first anniversary... and decides to blow up dual-boot machines (a lot of angry geeks). MIT scientists create a five-atom quantum computer assumed to be able to overcome modern security schemes. (Seemingly) normal people wander around, hunting Pokemons

- 2017 - Cyberwar in Ukraine (Petya, NotPetya). Internet of (Bad) Things. WannaCry ransomware in 230 000+ Windows machines. Equifax breach, 143M accounts leaked

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- 2018 - Meltdown and Spectre vulnerabilities in Intel processors. Cambridge Analytica and Facebook, EU and GDPR. MS buys GitHub, IBM buys Red Hat. Cryptocurrency mining a rising trend in malware

- 2019 - Huawei scandal starts. Google+ and Yahoo! Groups close down. Google declares quantum supremacy, also starts drone-based delivery of packages in some locations (in the U.S. a FAA certificate is required). COVID-19 starts in China

- 2020 - the first year of the pandemic brings new problems (obstacles, cybercrime) with some silver lining (Zoom etc). Elon Musk experiments with Neuralink on pigs

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- 2021 – more COVID-19. Windows 11, macOS Monterey, iOS 15 and Android 12. Tamil Tigers launch cyberwar in Sri Lanka, also large ransomware campaigns in Ireland and New Zealand. El Salvador proclaims Bitcoin as a full alternative to national currency

- 2022 – After the distance work during the pandemic, many workers are reluctant to return to office. War in Ukraine on both physical and cyberfronts (incl. Operation Russia by Anonymous). Microsoft ponders buying Activision Blizzard. OpenAI/ChatGPT messes with education quite thoroughly

Some recent keywords (a bit twisted)

- Security, privacy… and PIBKAC

- Cyberwars (a*holes got computers, too…)

- AI and machine learning (smarter systems, dumber people…)

- Software rental and *aaS

- Cloud (a PC term for Someone Else's Computer…)

- Internet of (Bad) Things

- Dumb^H^H^H^HOrdinary users

- …

Bottom line: why study history

- Lets others do the blundering

- Helps seeing through marketing and foul play

- Shows what we really have got

For further reading

- Levy, Hackers: the Heroes of the Computer Revolution

- Freiberger & Swaine, Fire in the Valley: the Making of Personal Computer

- Gates & Myrhvold, The Road Ahead (ka e.k.)

- Carlton, Apple (ka e.k.)

- Vise, The Google Story

- Moody, Rebel Code: Inside the Open Source Revolution

- …

That's it for today :)