

# Typology of programming languages

~ Before Personal Computers Era ~

# Operating system

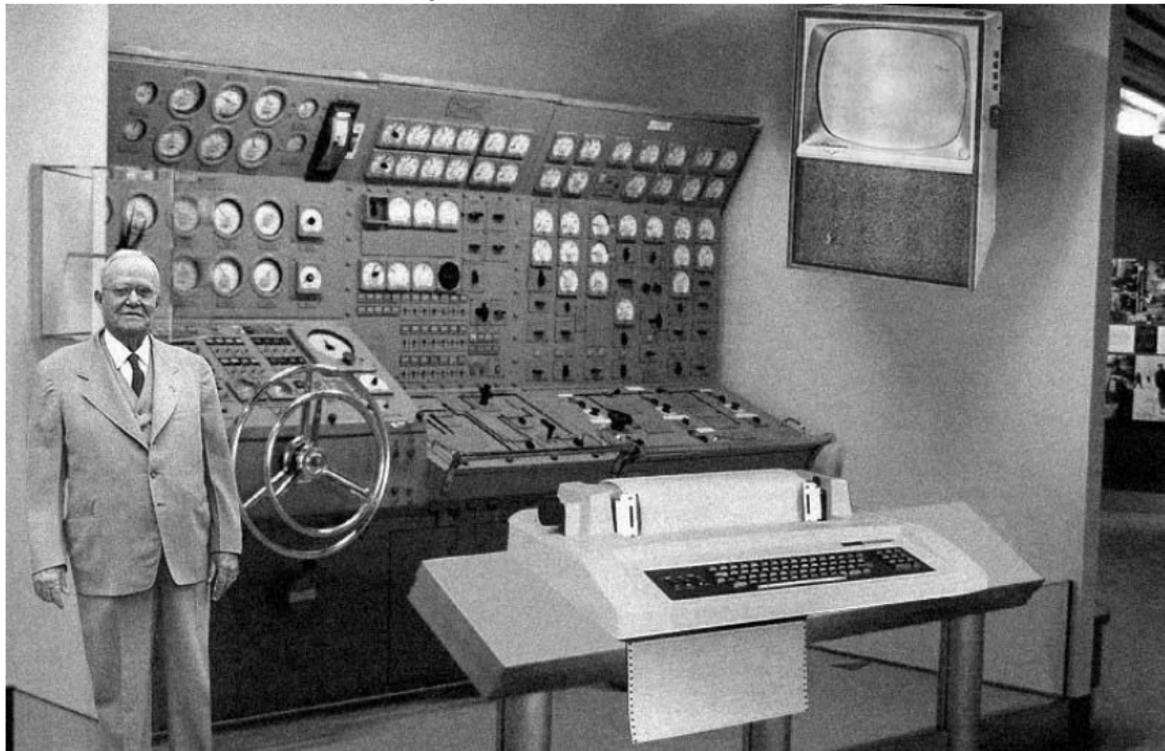
- **1954** The first operating system, used on IBM 704.

# RAND Corporation

- **1954-11** Scientists from RAND Corporation have created this model to illustrate how a "home computer" could look in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 50 years from now scientific progress is expected to solve these problems. With teletype interface and the Fortran language, the computer will be easy to use

# 1954 prevision of computers in 2004

Note the joystick



# Submarine maneuvering room



# Ordinateur

- **1955** First computer user group: SHARE (IBM 701)
- **1955** IBM asks Jacques Perret, a French philologist, for a French translation of the term “computer”. He proposes the word “*ordinateur*”.

# Movie “Desk Set”, with Katharine Hepburn



# The Traitorous Eight

- 1957 The Traitorous Eight leave the Shockley Semiconductor Laboratory to form Fairchild Semiconductor.

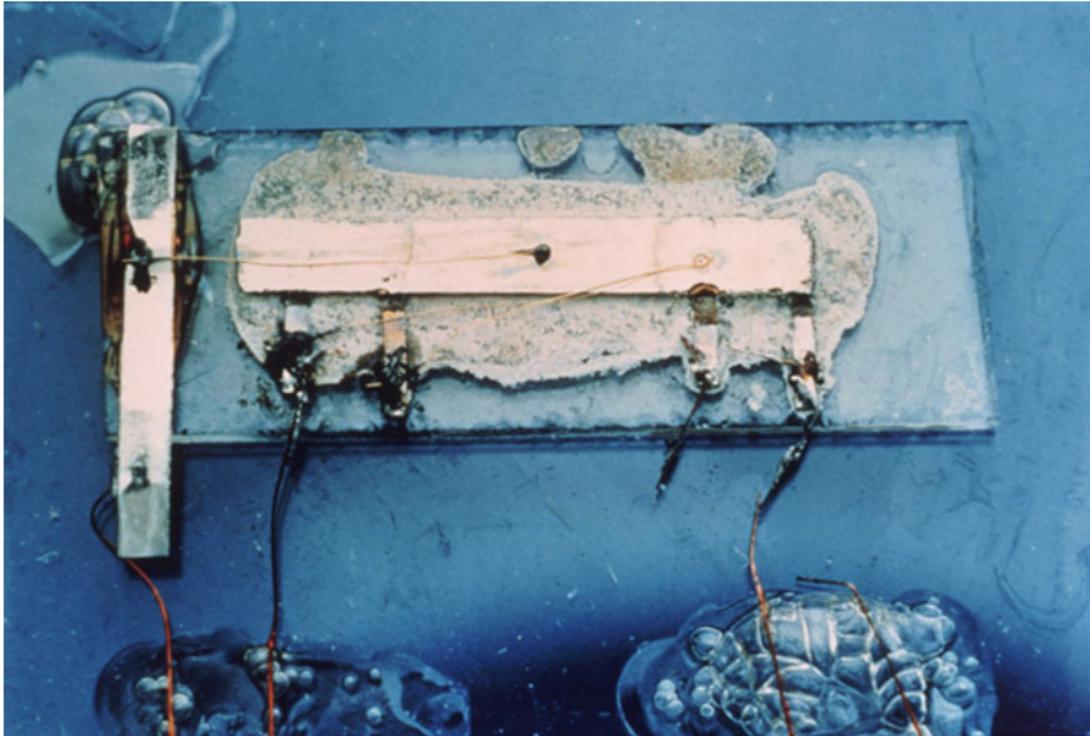


**Gordon Moore**, Sheldon Roberts, Eugene Kleiner, **Robert Noyce**, Victor Grinich, Julius Blank, Jean Hoerni, and Jay Last.

# 1958

- **1958** The first fully transistorized supercomputer, the CDC 1604.
- **1958** Texas Instruments makes the first integrated circuit.

# Jack Kilby's first integrated circuit



# 1959

- **1959** COBOL is defined.
- **1959** IBM introduces the 1401. Over 10,000 units will be delivered during its lifetime.



# Removable disks

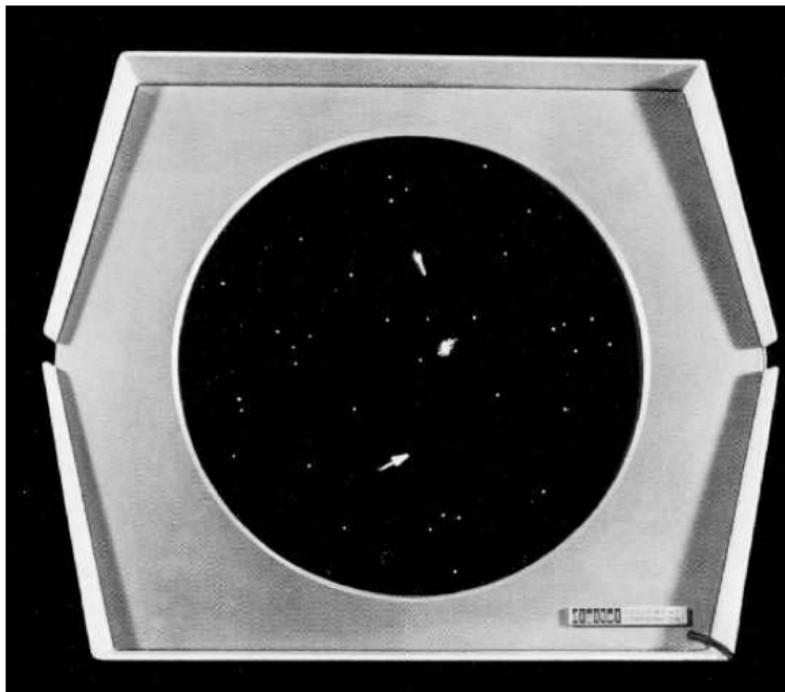
- **1960** Removable disks first appear on IBM 1311 with 6 disks that could hold 2.6 MB



# 1960: The first minicomputer, the PDP-1



## 1962: The first video game: Space war



# Steve Russell in 2002



# Tandy Radio Shack

- **1963** Tandy acquires Radio Shack (9 stores).

# 1964

- **1964** MIT students play music on a PDP-1  
**sound: we-shall-overcome.au**
- **1964** Control Data Corporation introduces the CDC 6000, the most powerful computer for several years.
- **1964** BASIC (Beginners All-purpose Symbolic Instruction Code) is created.

# 1965

- **1965** Control Data Institute provides computer-related education.
- **1964** Douglas Engelbart creates the first mouse

# First Mouse



# Mother of All Demos

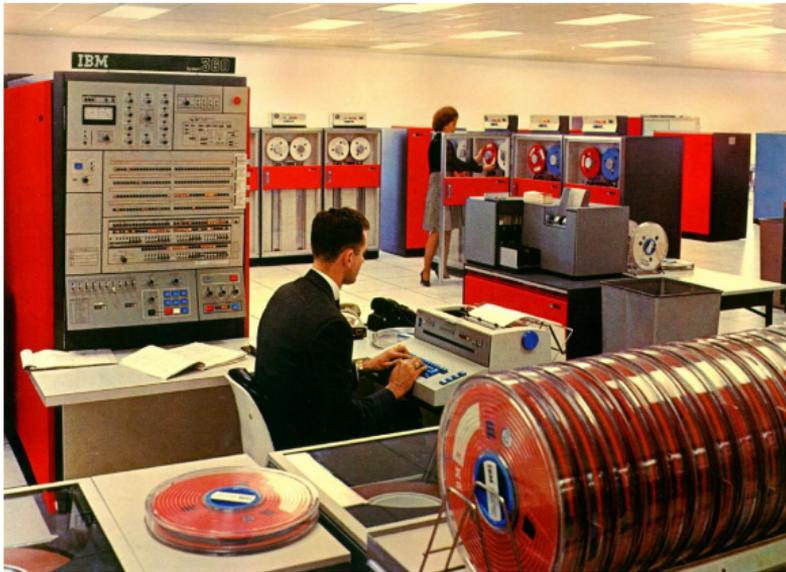
**video: engelbart-7**

## According to Herb Sutter this *Mother of All Demos* demonstrated prototypes for::

- The personal computer for dedicated individual use all day long.
- The mouse.
- Internetworks.
- Network service discovery.
- Live collaboration and desktop/app sharing.
- Hierarchical structure within a file system and within a document.
- Cut/copy/paste, with drag-and-drop.
- Paper metaphor for word processing.
- Advanced pattern search and macro search.
- Keyword search and multiple weighted keyword search.
- Catalog-based information retrieval.
- Flexible interactive formatting and line drawing.
- Hyperlinks within a document and across documents.
- Tagging graphics, and parts of graphics, as hyperlinks.
- Shared workgroup document collaboration with annotations etc.
- Live shared workgroup collaboration with live audio/video teleconference in a window.

# IBM-360

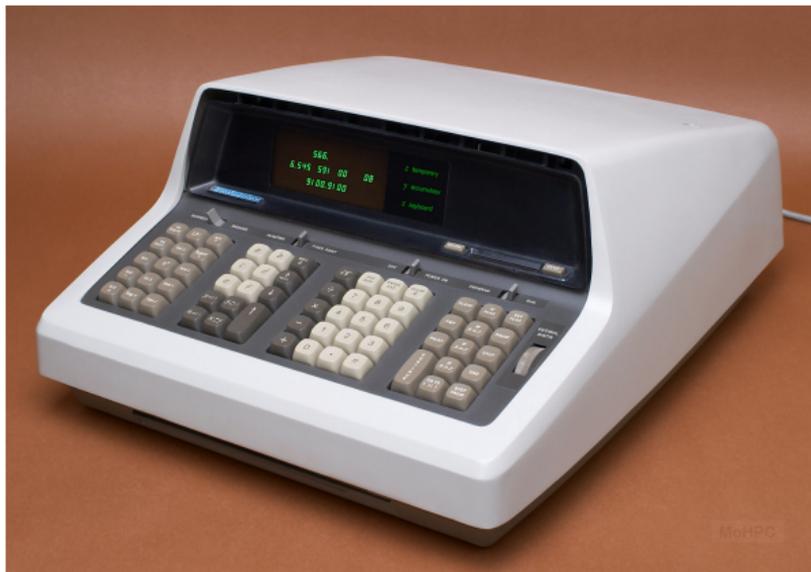
- **1965** IBM ships the first System 360, its first integrated circuit-based, or third generation computer.



# 1965-1968

- **1965** First computer science Ph.D. is granted to Keller, Mary Kenneth at the Wisconsin-Madison.
- **1965** Texas Instruments offers the first solid-state hand-held calculator.
- **1968** First Hewlett-Packard calculator. 20Kg, \$4 900.

# HP 9100a



# Intel and AMD

- **1968-07-18** Integrated Electronics (Intel) Corp. is founded by Gordon E. Moore (chemist and physicist) and Robert Noyce (physicist and co-inventor of the integrated circuit).
- **1969** AMD is founded

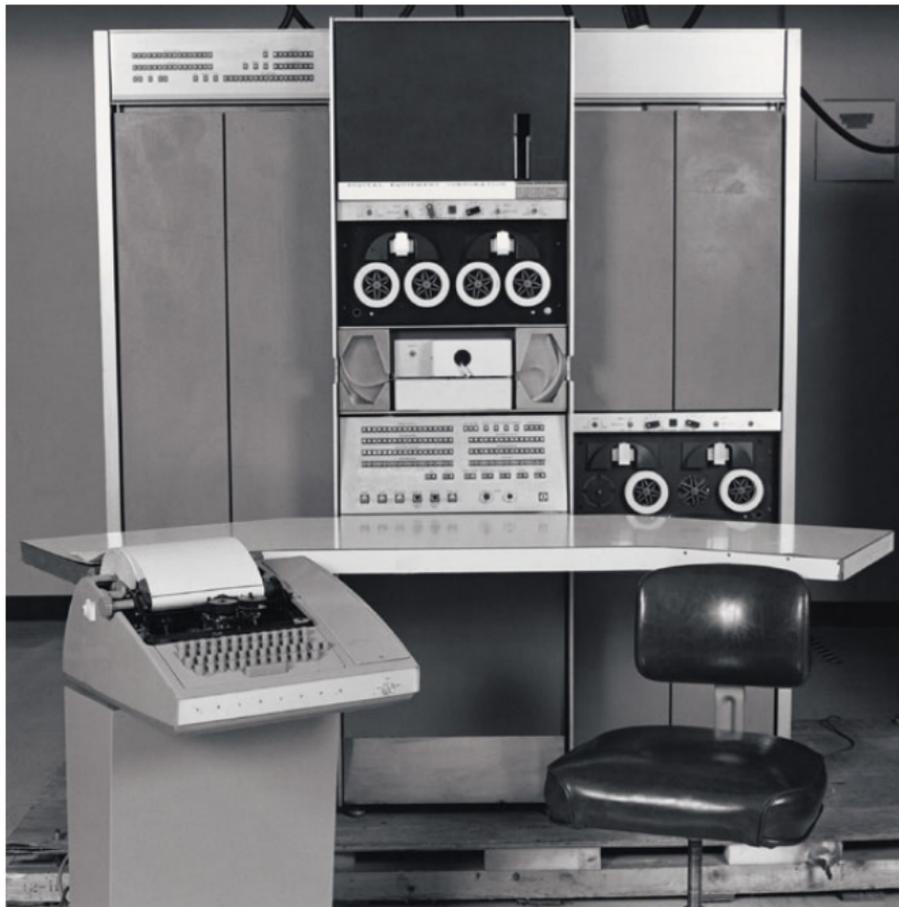
# 1969

- **1969** Bell Labs drop out of the MULTICS project (Multiplexed Information and Computing Service).

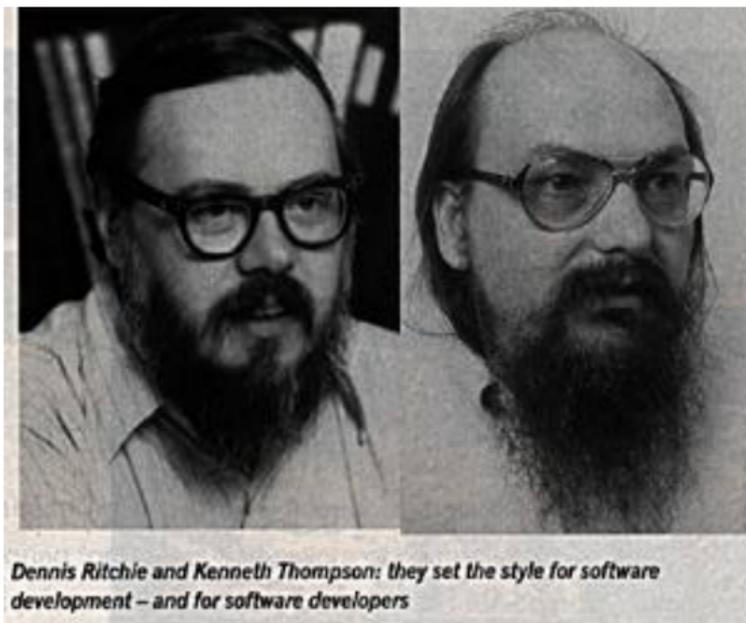
Ken Thompson implements UNICS on a PDP/7 (4K of 18 bit words) in one month while his wife is in vacation. One week per component: kernel, shell, editor, and assembler.

UNICS, a joke made by Brian Kernighan (or Peter Neumann standing for the UNIplexed Information and Computing Service, since the PDP-7 version could support only one user—Ken. After too many bad puns about EUNUCHS being a castrated MULTICS, the name was changed to UNIX

# PDP/7



# Denis MacAlistair Ritchie & Kenneth Lane Thompson



*Dennis Ritchie and Kenneth Thompson: they set the style for software development – and for software developers*

# Ken Thompson & Denis Ritchie in front of a PDP/11



# IBM 370

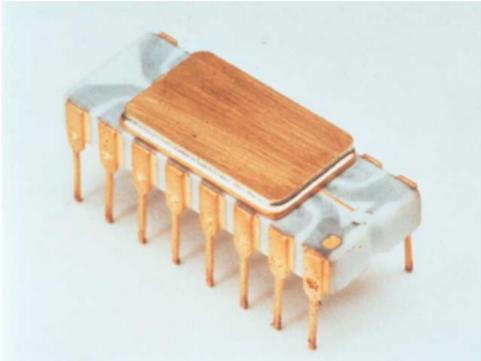
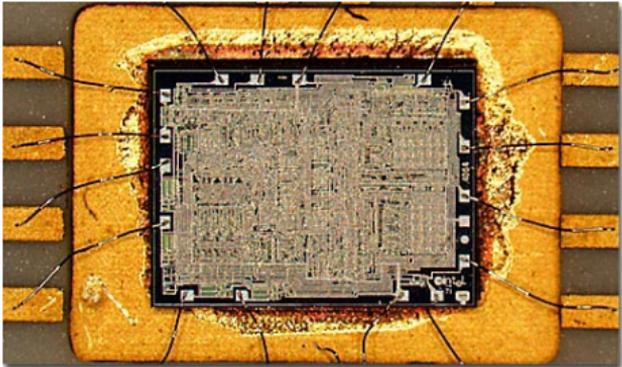
- 1970 IBM ships its first System 370, a fourth generation, computer.



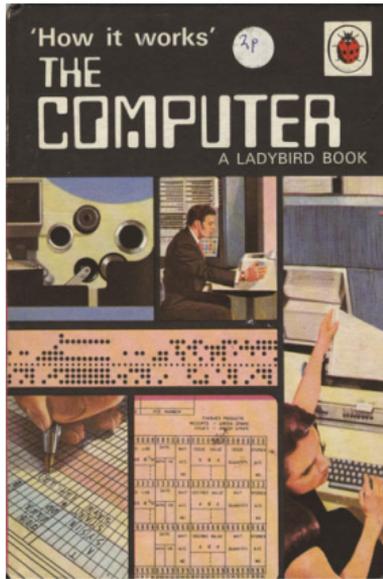
# 1971

- **1971** IBM introduces the 370/135 and 370/195 mainframe computers.
- **1971** IBM introduces floppy disks.
- **1971** Intel Corporation announces the first microprocessor, the Intel 4004, the “mini-programmer”

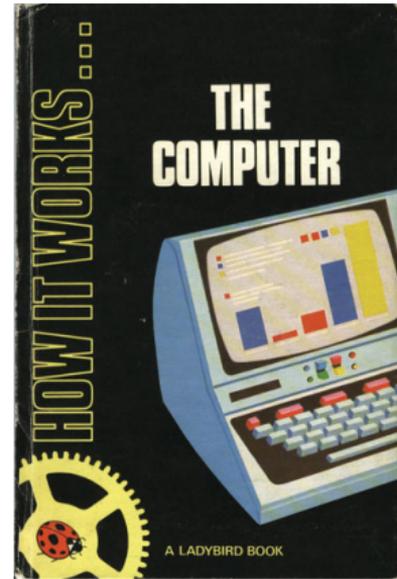
# Intel inside, intel outside



# “How It Works...The Computer” is published



1st edition, 1971



2nd edition, 1979

# Kenbak I

- The first personal computer, the Kenbak I. No processor! Only TTL. 256b RAM. \$750. About 40 units.



# 1972

- **1972** Nolan Bushnell of Atari introduces Pong, the first major coin-operated electronic video game
- **1972** First electronic pocket calculator is developed by Texas Instruments.
- **1972** Ethernet is invented at Xerox PARC by Robert Metcalfe (not only for computer, but for printers too).

# Who's that?



# Who's that?

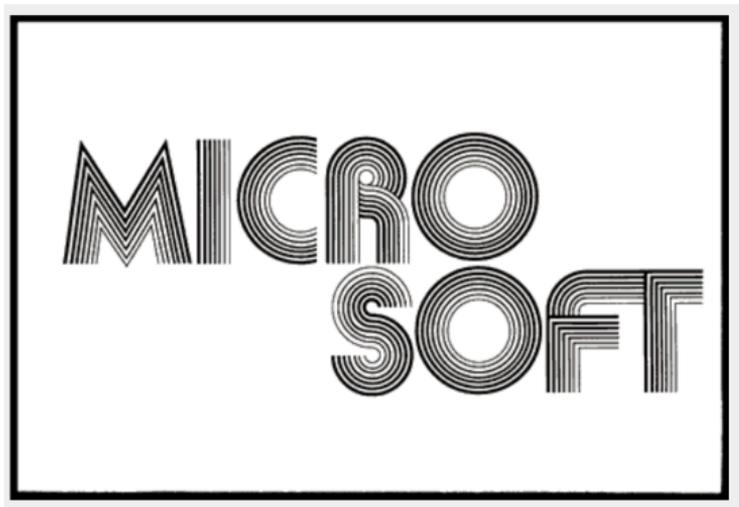


Paul Allen, Bill Gates

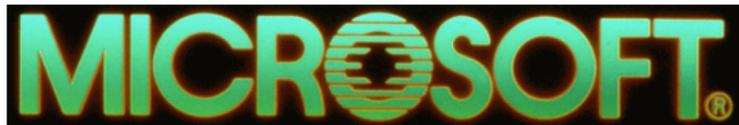
# 1975

- MITS introduces the Altair personal computer  
Named after a Star Trek episode, A Voyage to Altair.  
The kit costs \$397. Designed by Ed Roberts and Bill Yates.
- Micro Soft is founded after William H. Gates III and Paul Allen sell BASIC to MITS for the Altair PC.

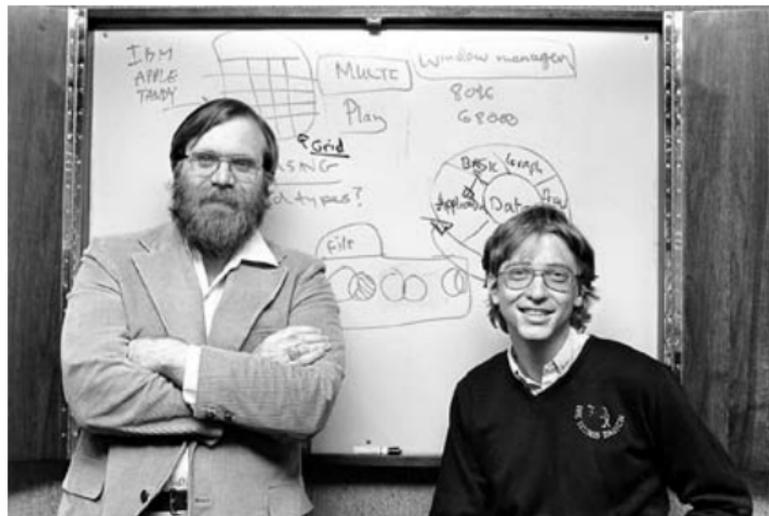
# Micro Soft logo



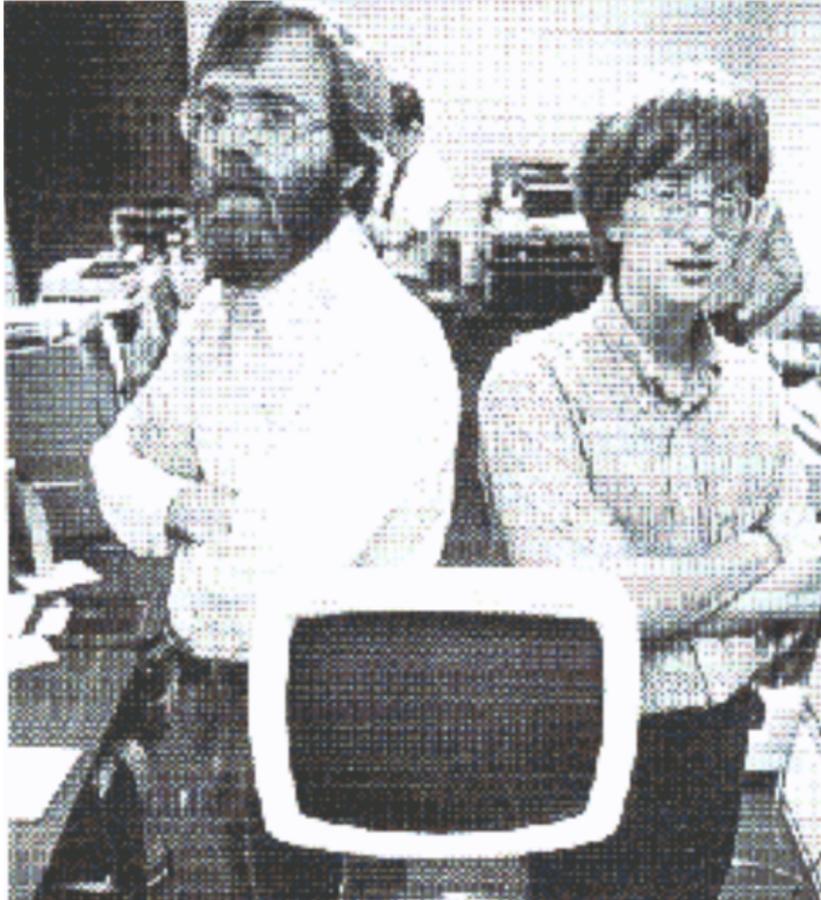
# Microsoft logo in the mid 80s



# Paul Allen, Bill Gates



# Paul Allen, Altair Peecee, Bill Gates



# Paul Allen, Bill Gates



# 1975

- **1975** The first computer store opens in Santa Monica, CA.
- **1975** IBM sells its first personal computer, the PC 5100.  
16K to 64K of memory, BASIC and APL, tape drive for program storage:  
\$8,975 to \$19,975.

# IBM PC 5100



# 1976

- **1976** Z-80 chip is introduced.
- **1976** Apple I is commercialized at \$666.66

# Apple-I



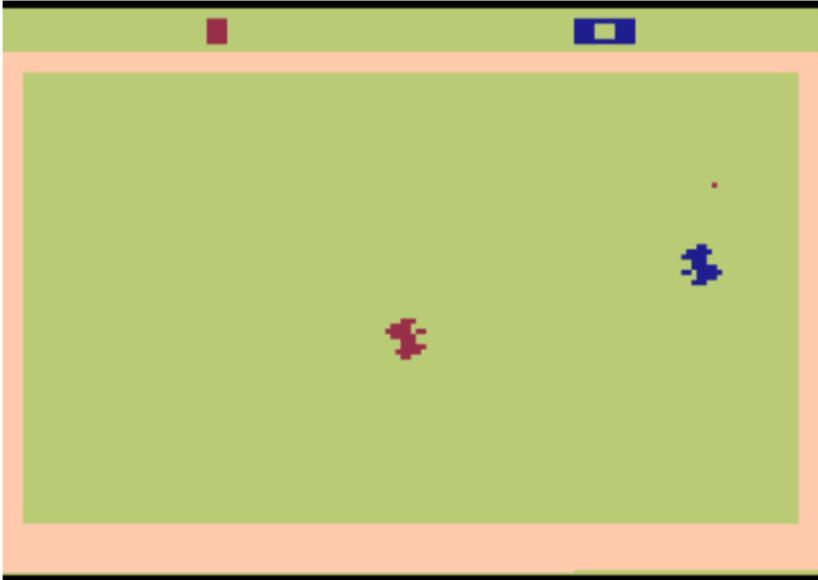
# 1977

- **1977-10** The Atari VCS 2600 is introduced on the US market

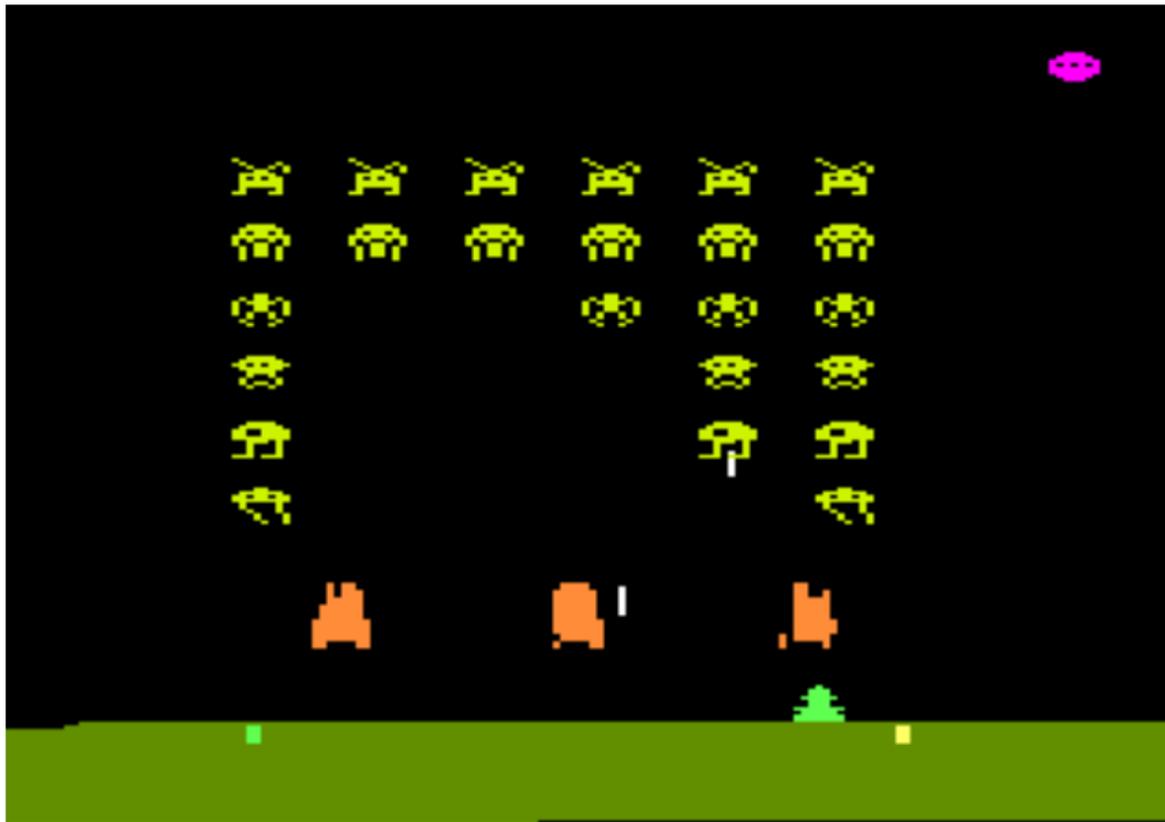
# Atari VCS 2600



# Combat (1977)



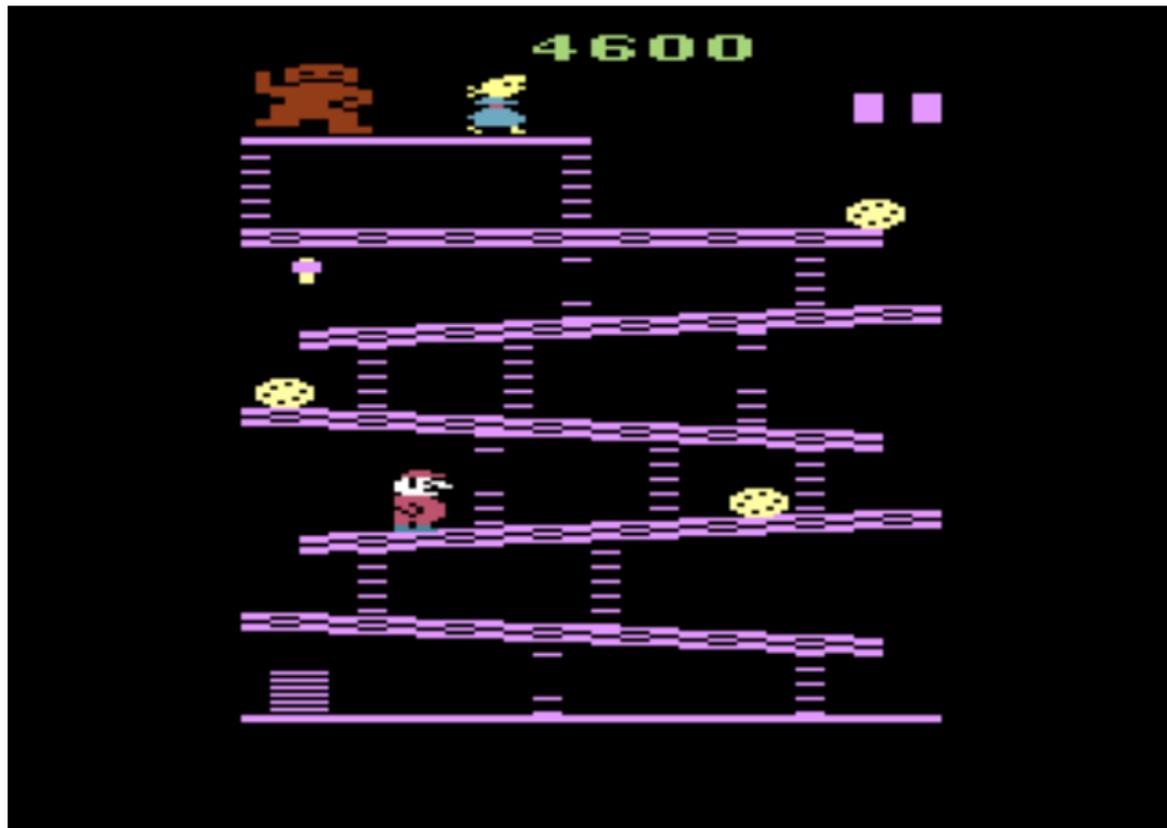
# Space Invaders (1980)



# Pacman (1982)



# Donkey Kong (1982)



# ET (1982)



# Pitfall (1982)

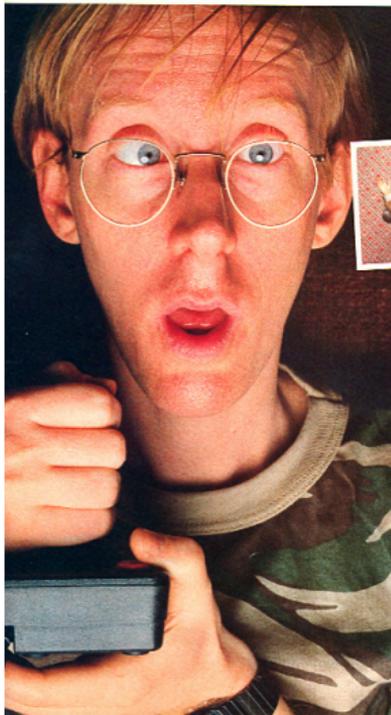


# Pole Position (1983)



# Video games are a huge success

## I WAS A TEENAGE ZOMBIE!



**MIDWESTERN YOUTH TELLS  
HOW INFOCOM DEPROGRAMMING  
BROUGHT HIM BACK  
FROM A LIVING DEATH.**

"IT GOT SO I COULDN'T LET GO," confesses John Carlson of Hickory Falls, Iowa. "My hands were welded to my joystick twenty-four hours a day. Blisters covered both my thumbs, my wrists ached, my eyes throbbled... I'd given up eating and sleeping." It had started as a mindless hobby for young Johnny. But now, it was turning his mind to green jelly.

Finally, a concerned relative decided it was time to take action. Johnny remembers: "I'd passed out after 63,000,000 points—I forget

which game. When I came to, there was this personal computer in front of me, with an Infocom game in the disk drive. I just sat there, numb, staring at the words on the screen."

Then, the extraordinary happened. "It was like there was this voice in the computer, talking to my imagination. Suddenly, I was inside the story. It was something I'd never experienced before—challenging puzzles, people I could almost touch, dangers I could really feel. Kind of like Infocom had plucked right into my mind, and took me into a whole new dimension."

"Sure, I still play video games. But the Infocom experience opened my eyes. I know now there's more to life than joystick."

Johnny's folks agree. "We've got our boy back," says Mrs. Carlson, "thanks to Infocom."

We can't save all the Johnnies out there. But hope still remains for countless thousands in the remarkable prose of the ZORK® Trilogy, DEAD LINE,™ STABROSS,™ and SUSPENDED.™

So please—before it's too late—rush today to your local computer store. Step up to Infocom games. All words. No pictures. The secret reaches of your mind are beckoning. A whole new dimension is in there waiting for you.

**INFOCOM**  
The next dimension.

Infocom, Inc., 35 Wheeler St., Cambridge, MA 02138

For more: Apple II, Atari, Commodore 64, CP/M, DEC, DOS, EBCDIC, IBM, MS-DOS, MVS, RISC, UNIX, VAX, VMS, Windows 1, 11, Professional, XENIX, Xerox, Z8000.

# Bill Gates Mugshot

- Bill Gates arrested for traffic infraction.



# Apple ][



# Jed's Other Poem

**video jed-s-other-poem**