



CSCI 2310 OPERATING SYSTEMS

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Logistics and Organizational Info

- Introductions
sbarker@bowdoin.edu
- Course web page:
<http://www.bowdoin.edu/~sbarker/2310>
- Questions about dates, times, policies, etc...
 - Check the website first!

Assignment 0

- Come by and chat during office hours (or make an appointment)
 - CS background
 - Why you're taking this class
 - Something interesting about yourself
- Due Friday!
- Also email me group members as soon as possible.

“Abstraction”

AN x64 PROCESSOR IS SCREAMING ALONG AT BILLIONS OF CYCLES PER SECOND TO RUN THE XNU KERNEL, WHICH IS FRANTICALLY WORKING THROUGH ALL THE POSIX-SPECIFIED ABSTRACTION TO CREATE THE DARWIN SYSTEM UNDERLYING OS X, WHICH IN TURN IS STRAINING ITSELF TO RUN FIREFOX AND ITS GECKO RENDERER, WHICH CREATES A FLASH OBJECT WHICH RENDERS DOZENS OF VIDEO FRAMES EVERY SECOND

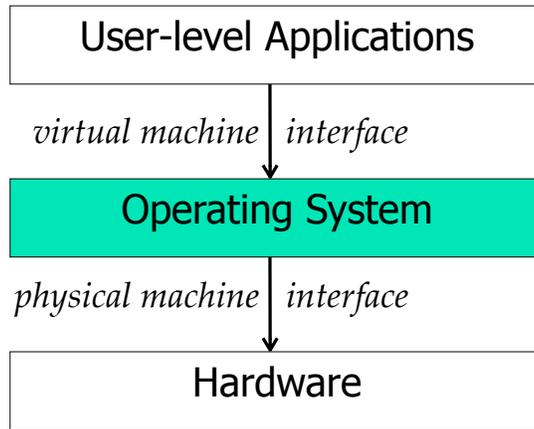
BECAUSE I WANTED TO SEE A CAT
JUMP INTO A BOX AND FALL OVER.



I AM A GOD.

(source: xkcd.com)

Top-Level View of an OS

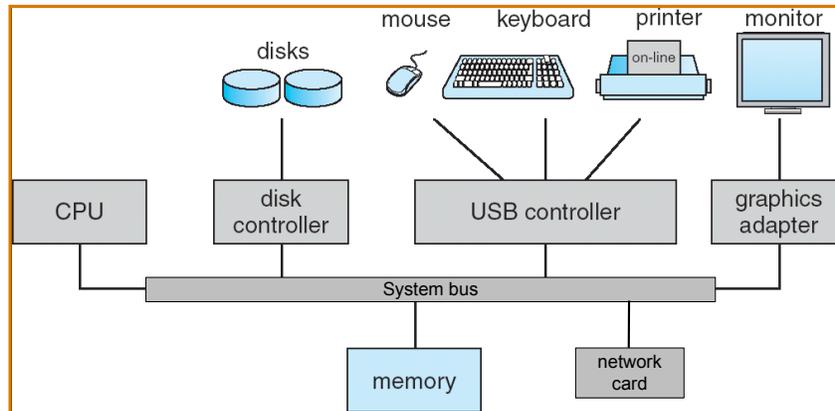


What's an OS? Bill Gates says...

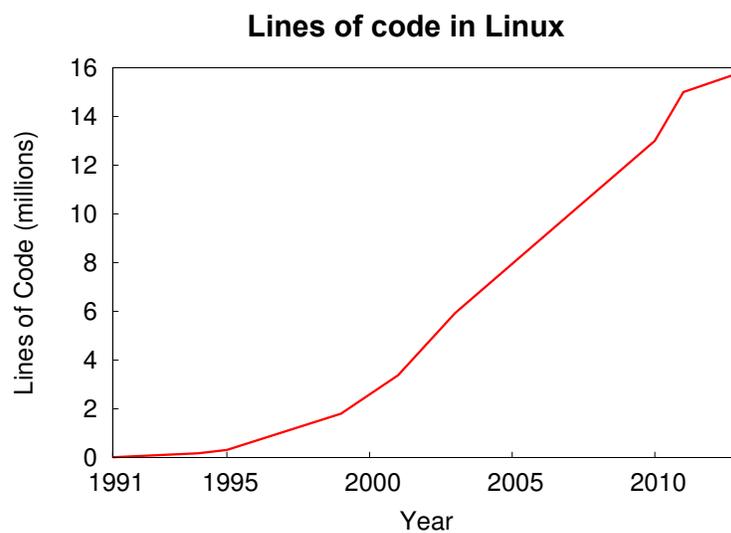


“even a ham sandwich”
(Steve B.)

Generic Computer Architecture

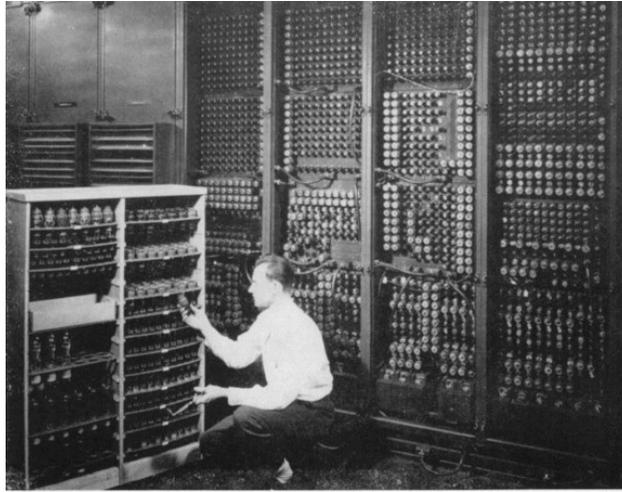


Now for some history...



1. Single-User Computers (1945-55)

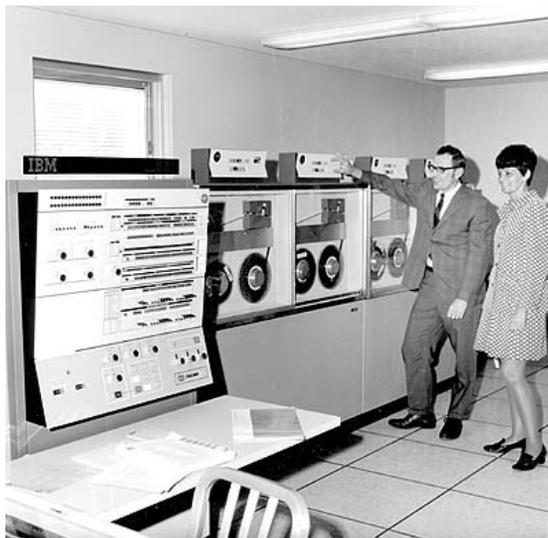
Vacuum tubes!



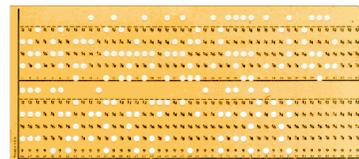
Replacing a bad tube meant checking among ENIAC's 19,000 possibilities.

2. Batch Processing (1955-65)

Mainframes!



Punch cards!



3. Multiprogramming (1965-80)



Transistors!



Multiple programs concurrently

Simultaneous I/O and computation

4. Personal Computers (1980-present)



UNIX (1971)



MS-DOS (1981)

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                Welcome to MS-DOS 2011
For a list of simple commands, please type HELP
>HELP
LOC - Displays the location of the currently operating program
OPEN <directory> - Opens and displays contents of the directory entered
EXECUTE <directory/filename> - Executes a file within that directory
REBOOT - Reboots current session <Confirmation will be required to prevent
accidental reboots>
SYS - Displays system properties
>RUN: person .EXE

What was that? I can't understand you.
>realityconfig

Attempting to configure your reality...
Enter password:
>^C to abort.

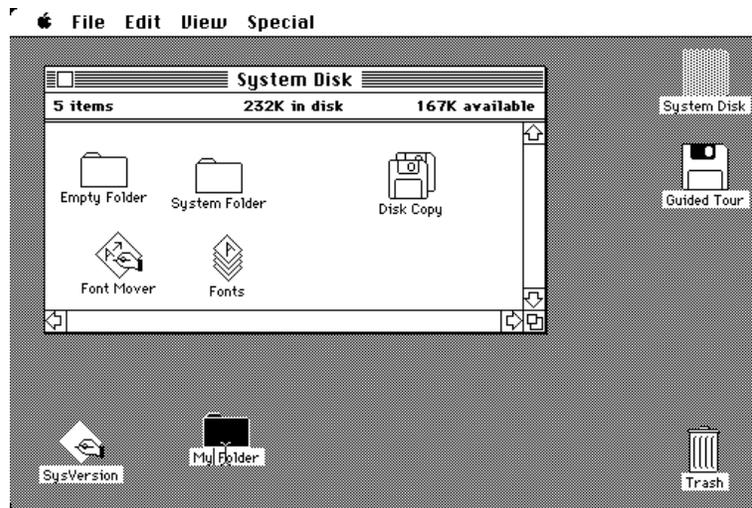
Incorrect password. Exiting function.
>SYS

Main Harddrive: 0:
Space Used: 185246/6152374 KB
Processing Power: 10 GH
RAM: 3000000 KB
>OPEN GAMES

What are you, stupid? GAMES isn't a directory! Try Q:/*
>EXECUTE adventure.EXE

Try adding a directory to that, before you seen any less intelligent.
>_
```

Mac OS (1984)



Mac OS X (2014)



Architectural Changes

Orders of magnitude!

<i>examples</i>	1983	1999
MIPS	0.5	500
cost/MIP	\$100,000	\$500
memory	1 MB	1 GB
network	10 Mbit/s	1 Gb/s
disk	1 GB	1 Tbyte

Where are we going?

