

History of the Graphical User Interface (GUI)

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COMP 445 - GUI Programming

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- 1950s – **Batch processing**: punched cards used to feed programs into the computer, results come back hours later



Tabulating the 1954 census with a UNIVAC

<http://explorepahistory.com/displayimage.php?imgId=1-2-1536>

- 1960s – Command-line interfaces (**CLIs**) require typing memorized commands

```
Current date is Tue 1-01-1980
Enter new date:
Current time is 7:48:27.13
Enter new time:

The IBM Personal Computer DOS
Version 1.10 (C)Copyright IBM Corp 1981, 1982

A>dir/w
COMMAND  COM      FORMAT  COM      CHKDSK   COM      SYS       COM      DISKCOPY  COM
DISKCOMP  COM      COMP    COM      EXEZBIN  EXE      MODE     COM      EDLIN     COM
DEBUG    COM      LINK    EXE      BASIC    COM      BASICA   COM      ART       BAS
SAMPLES  BAS      MORTGAGE BAS      COLORBAR BAS      CALENDAR BAS      MUSIC     BAS
DONKEY   BAS      CIRCLE  BAS      PIECHART BAS      SPACE    BAS      BALL      BAS
COMM     BAS

      26 File(s)
A>dir command.com
COMMAND  COM      4959    5-07-82  12:00p
      1 File(s)
A>
```

DOS screen from 1980:

<http://osxbook.com/book/bonus/ancient/vpc/images/dos1x.gif>

- 1968 – Doug **Engelbart** demonstrates **NLS**, a system which uses a mouse, pointers, hypertext, and multiple windows



[“The Demo”](#)

The first mouse



- 1970s – Researchers at Xerox Palo Alto Research Center (many from SRI) develop **WIMP** paradigm (Windows, Icons, Menus, Pointers)
- 1973 – **Xerox Alto**: commercial failure due to expense, poor user interface, and lack of programs

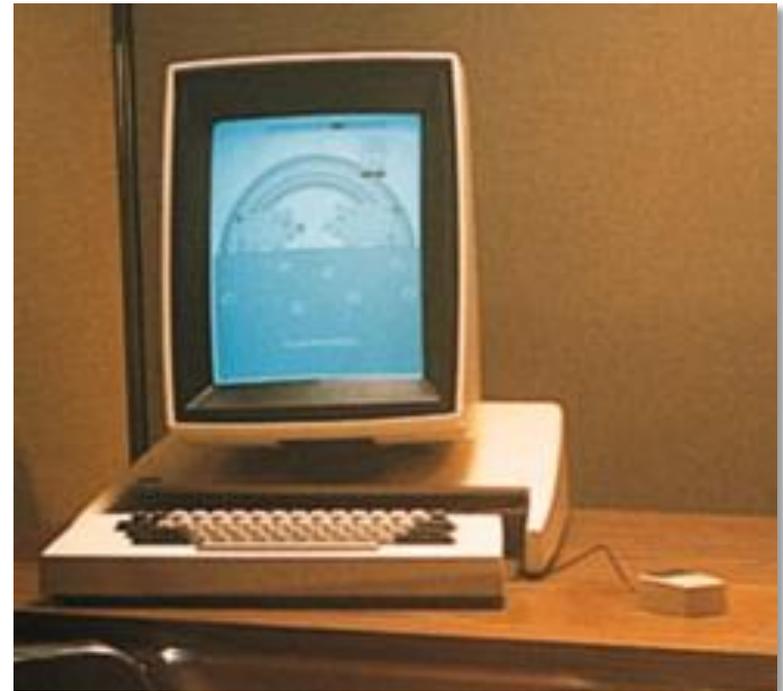


Image: <http://toastytech.com/guis/altosystem.jpg>

- 1979 – Steve Jobs and other Apple engineers **visit Xerox**. *Pirates of Silicon Valley* dramatizes the events, but Apple had already been working on the GUI before the visit



“I felt like one of the Mongol hoards coming to loot and plunder a bunch of defenseless villagers.” – Steve Wozniak in *Pirates of Silicon Valley*

- 1981 – **Xerox Star**: focus on WYSIWYG. Commercial failure (25K sold) due to expense (\$16K each), performance (minutes to save a file, couple of hours to recover from crash), and poor marketing

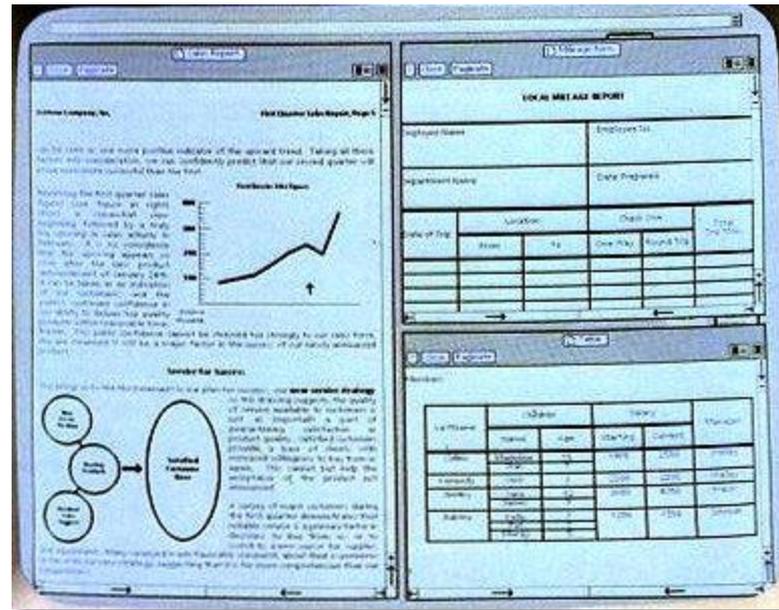


Image: <http://toastytech.com/guis/star.html>

- 1980s – Text user interfaces (**TUIs**), retronym coined after GUIs

```

Synchronet Main Menu
-----
Read/Post Messages      Message Area Selection      Electronic Mail
-----
N New message scan      J Jump to new msg area      E Read/Send E-mail
R Read message prompt
Z Continuous new scan
B Browse new scan
Q QWK packet transfer

P Post a message
A Post auto-message

Message Search
-----
F Find text in messages
S Scan for msgs to you

* List sub-boards
/* List groups
{ } # Select sub-board
[ ] /# Select group

Go to
-----
T File Transfer section
G Text file section
C Chat section
X External programs

Other Commands
-----
D Default user config
& Message scan config
U User lists
I Information
M Minute Bank
/L Node activity
^K Ctrl-key Menu

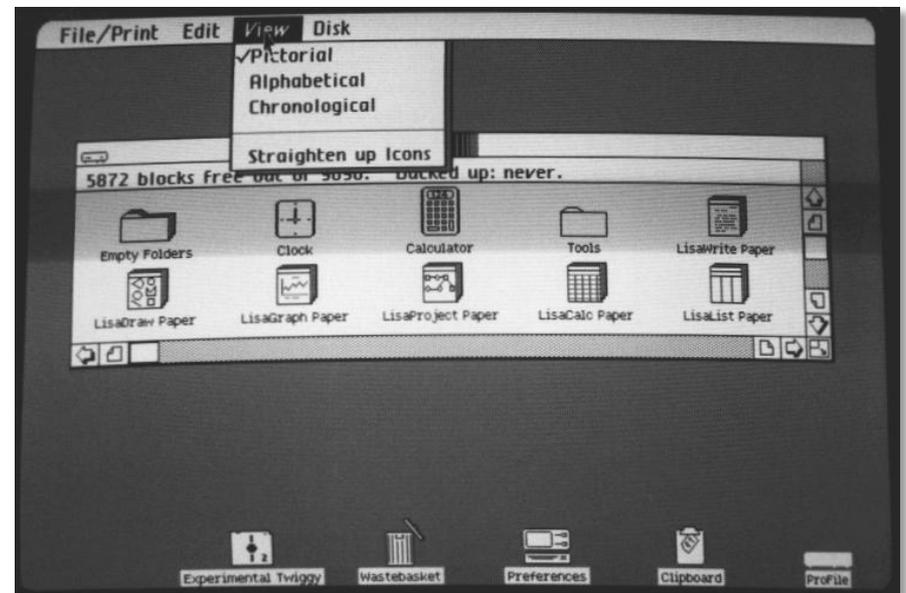
O Logoff BBS (or /O)

Anytime: Ctrl-U Who's online  Ctrl-P Send private msg  Ctrl-C Abort cmd/text

▪ Main ▪ 0:00:14 [1] Main [1] Notices: █

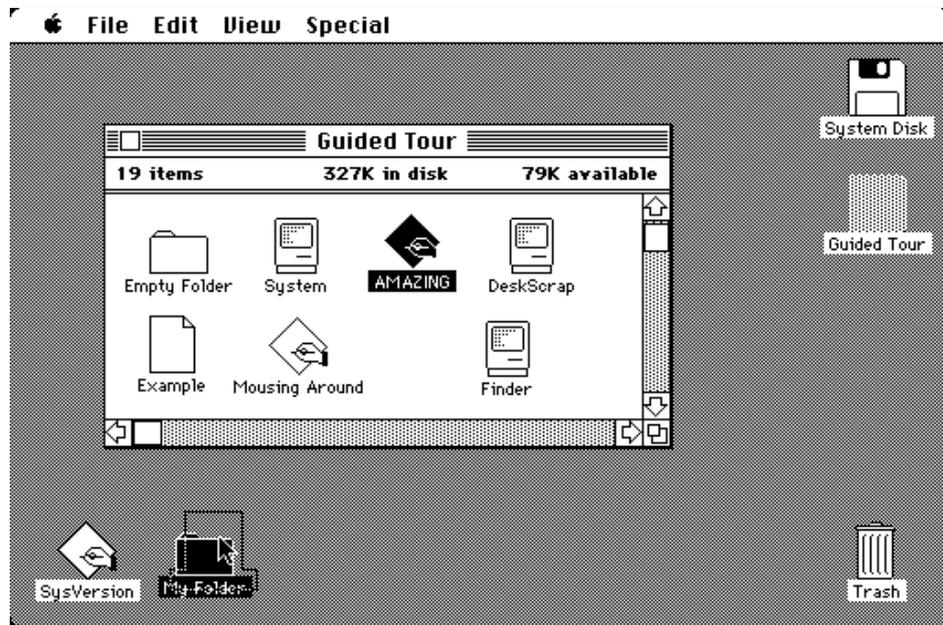
```

- 1983 – **Apple Lisa**: Many developers from Xerox, not commercially successful



Images: http://en.wikipedia.org/wiki/File:Apple_Lisa.jpg
<http://toastytech.com/guis/lisaos1LisaTour.html>

- 1984 – **Apple Macintosh** popularizes the GUI.
Super Bowl commercial shown once, most expensive ever made at that time



1984 Apple's Macintosh Commercial

This was the **commercial** that introduced the **Apple Macintosh** Computer to the world.

by [seancollier](#) | 4 years ago | 5,629,680 views

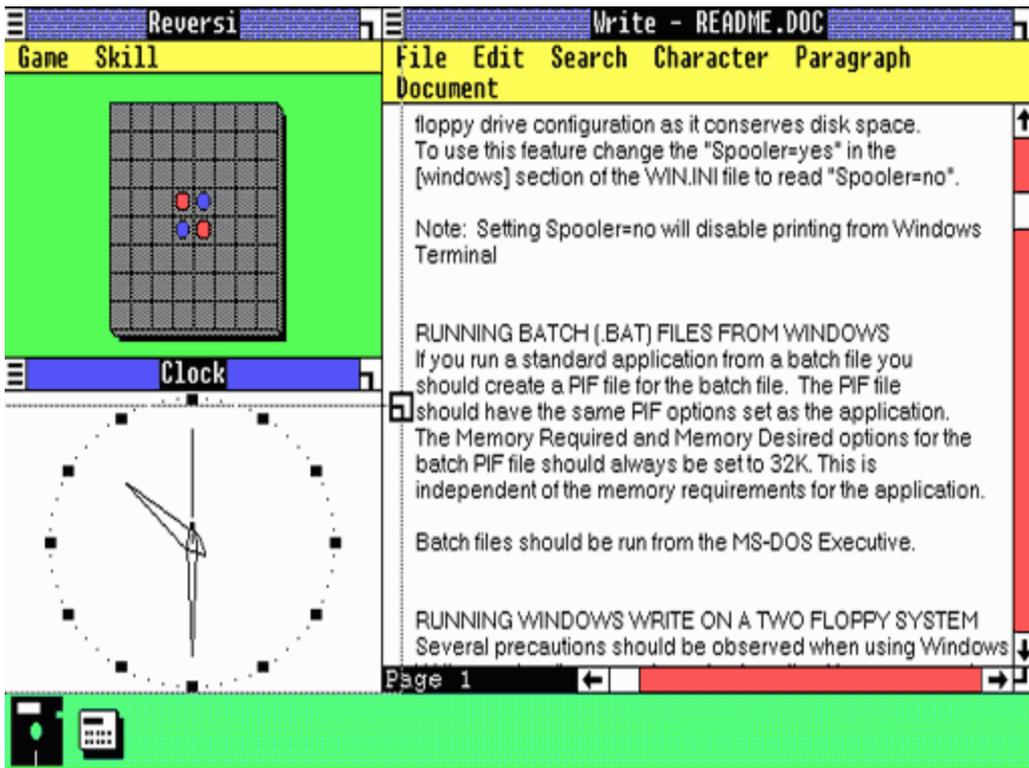
Image: <http://toastytech.com/guis/macos1.html>

- 1984 – MIT's **X Window System**: hardware-independent platform and networking protocol for developing GUIs on UNIX-like systems



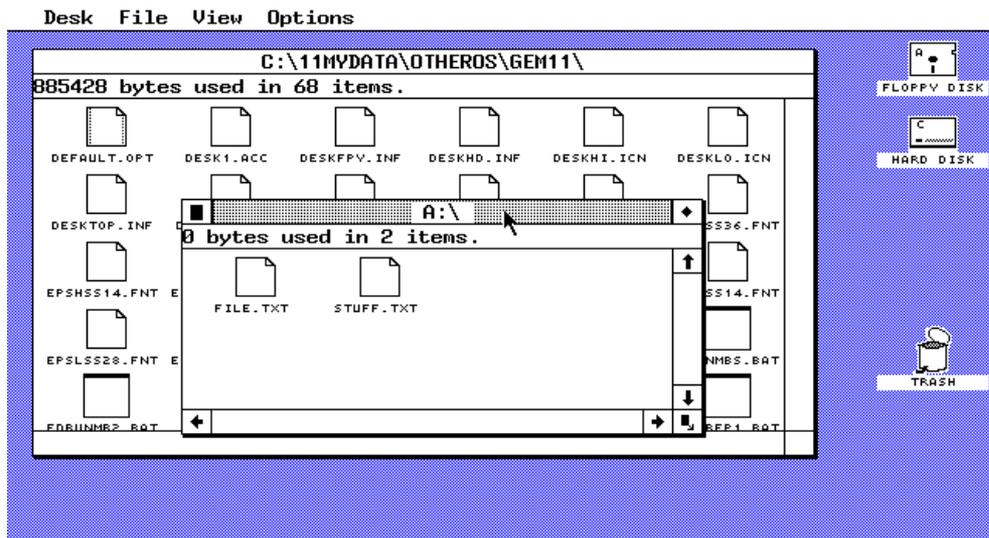
Image: <http://en.wikipedia.org/wiki/File:X-Window-System.png>

- 1985 – **Windows 1.0** – provided GUI interface to MS-DOS. No overlapping windows (tiled instead).



“You’re stealing from us!”
– Steve Jobs to Bill Gates
in *Pirates of Silicon Valley*

- 1985 – Microsoft and IBM start work on **OS/2** meant to eventually replace MS-DOS and Windows
- 1986 – Apple threatens to sue **Digital Research** because their GUI desktop looked too much like Apple's Mac. Digital Research cripples their desktop so Apple won't sue



DRI's GEM 1.1 desktop

- 1987 – **Windows 2.0** – Overlapping and resizable windows, keyboard and mouse enhancements

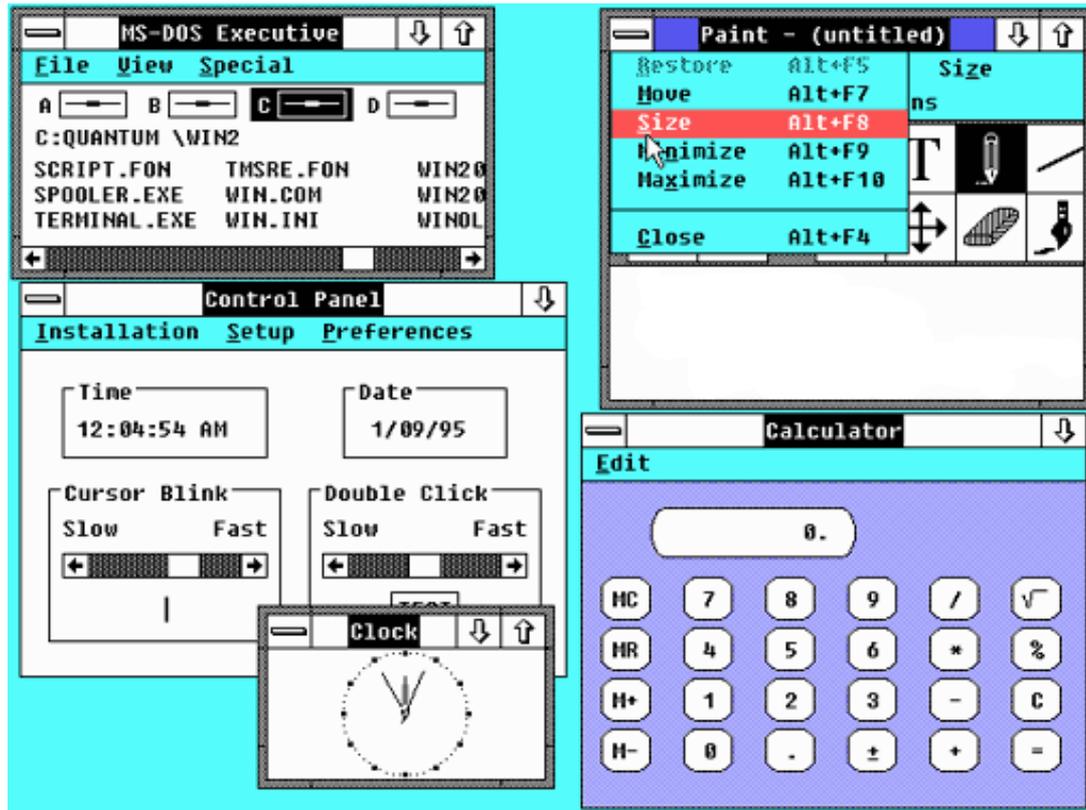


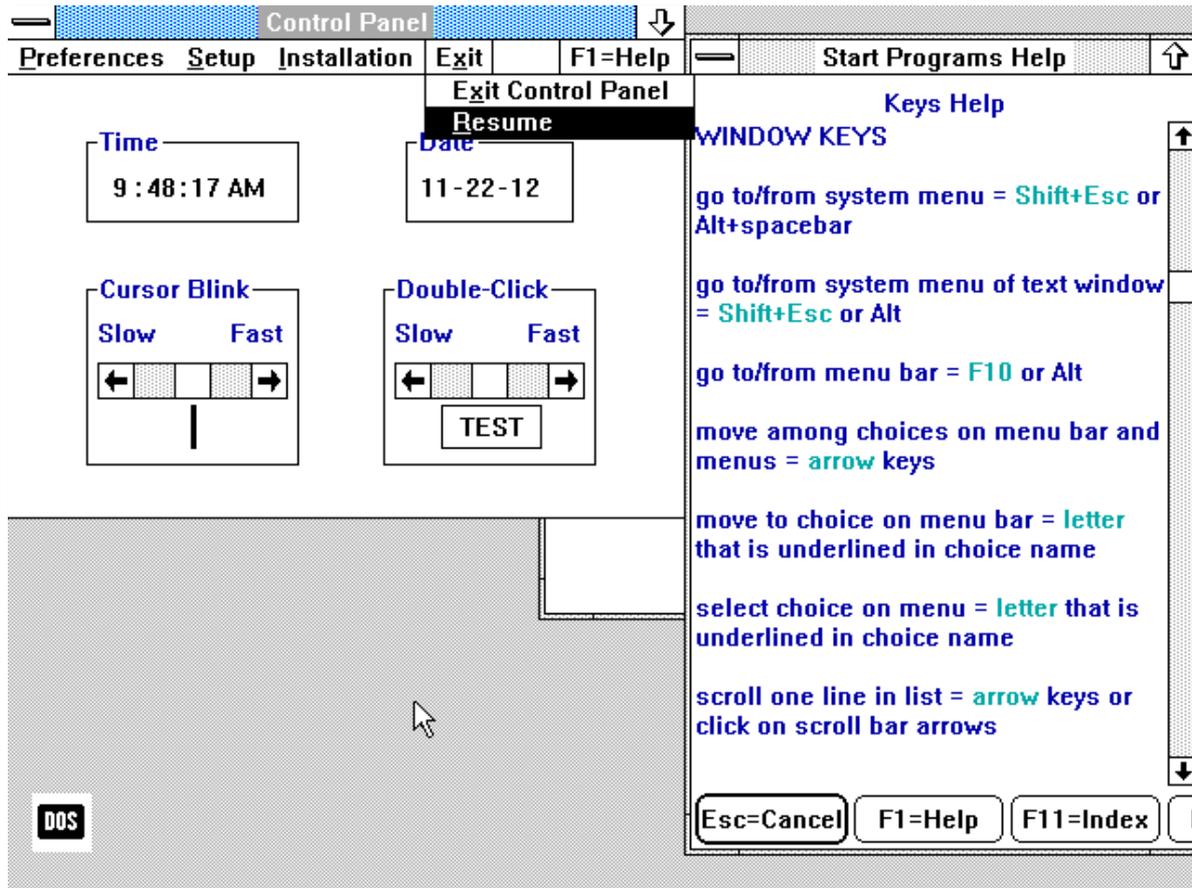
Image: http://en.wikipedia.org/wiki/File:Windows_2.0.png

- 1987 – **Macintosh II**: first full-color Mac



http://www.techdigest.tv/2009/06/galleries/the_ten_greates.php?pic=1

- 1988 – **OS/2 1.10** Standard Edition (SE) has GUI written by Microsoft, looks a lot like Windows 2



“I believe OS/2 is destined to be the most important operating system, and possibly program, of all time.” – Bill Gates (1987)



- 1988 – **Apple sues Microsoft** claiming Windows 2.0 violates Apple's copyrights on the "visual displays" of the Macintosh. Microsoft countersues and eventually wins in 1993
- 1989 – **Xerox sues Apple** for violating copyrights used in Lisa and Macintosh, but judge dismisses lawsuit without any action
- 1990 – **Windows 3.0**: Access to 16 MB. Microsoft and IBM split ways on OS/2

- 1992 – **Windows 3.1** – Widely popular DOS shell: TrueType fonts, multimedia, standardized common dialog boxes

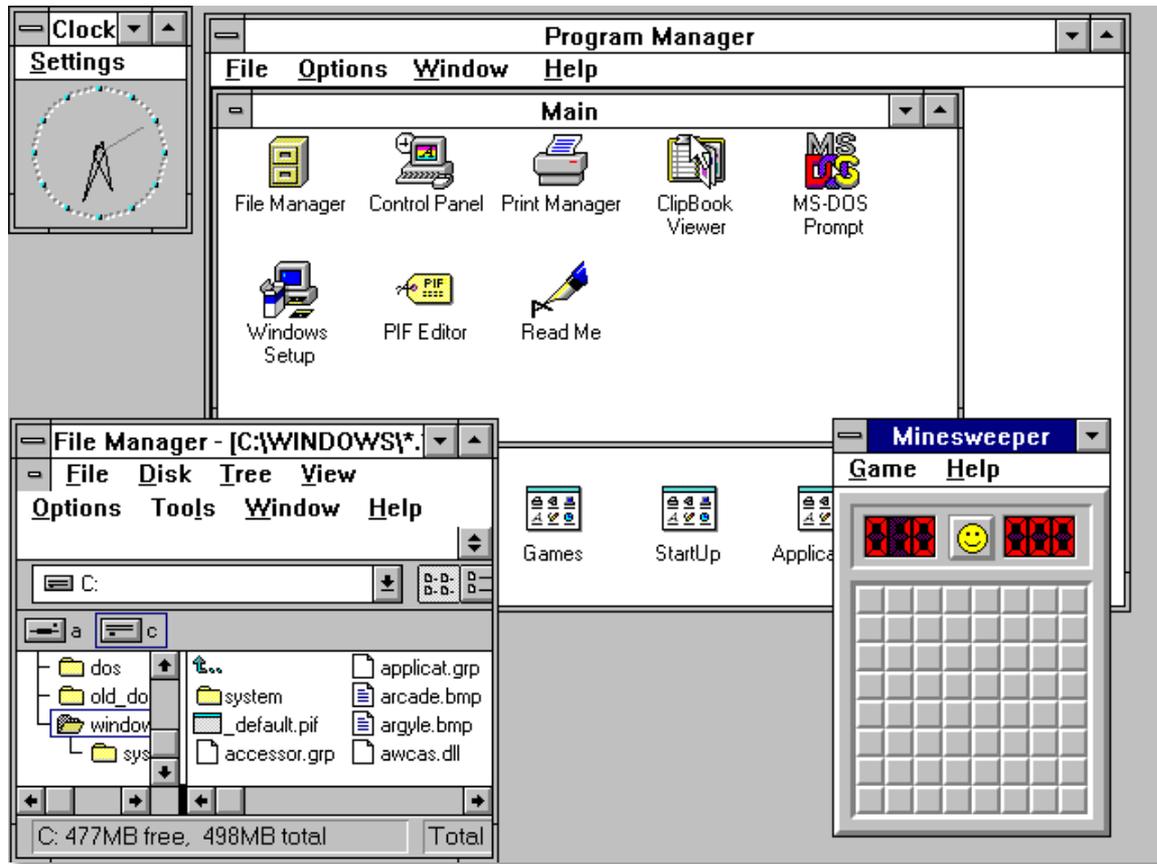


Image: http://en.wikipedia.org/wiki/File:Windows_3.11_workspace.png

- 1993 – **Windows NT** – MS’s first 32 bit OS, no longer a shell over MS-DOS

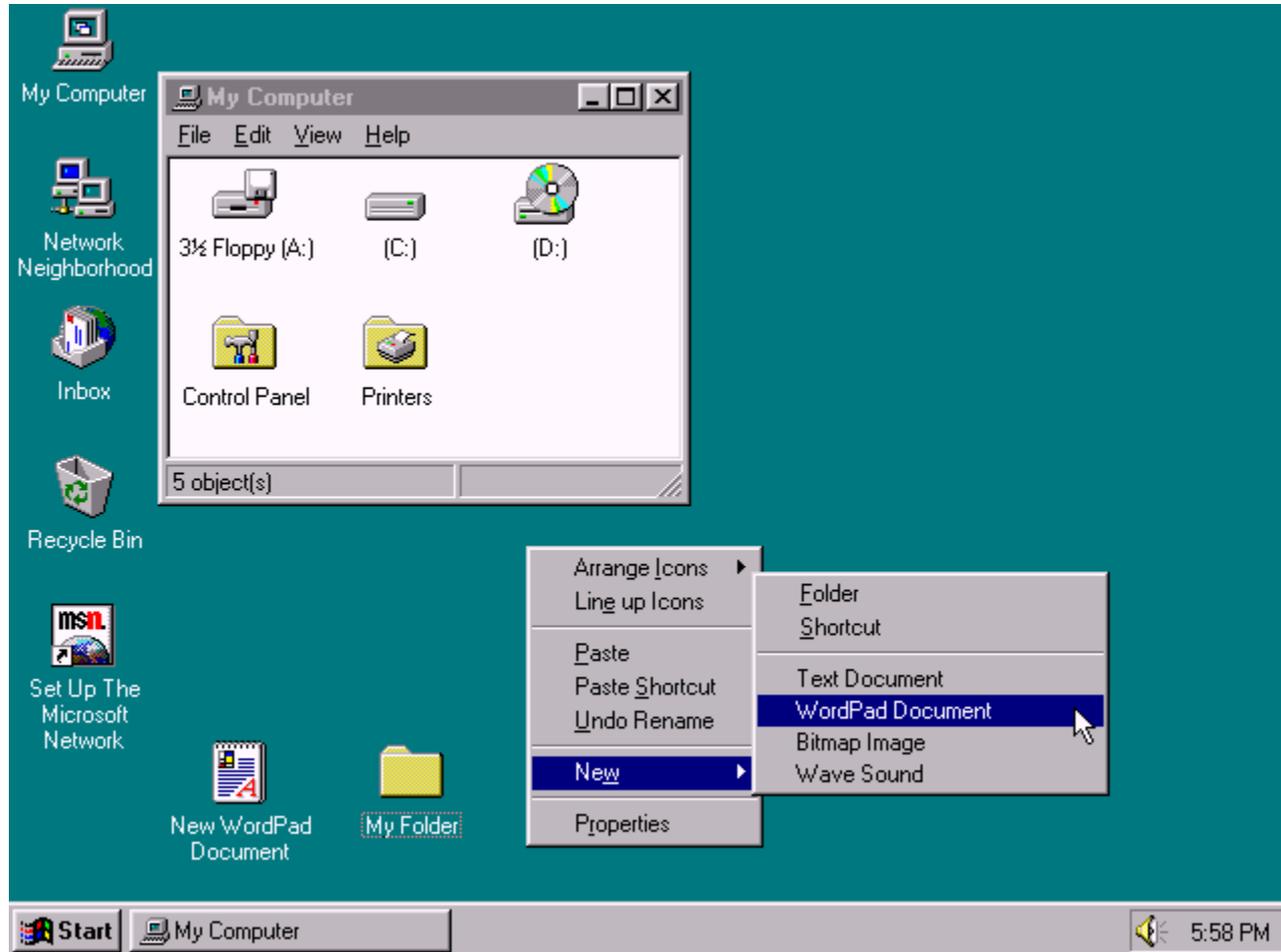
HTML forms incorporate radio buttons, check boxes, drop-down lists, etc.

“We have always been shameless about stealing good ideas.”

- Steve Jobs in *Triumph of the Nerds* (1996)



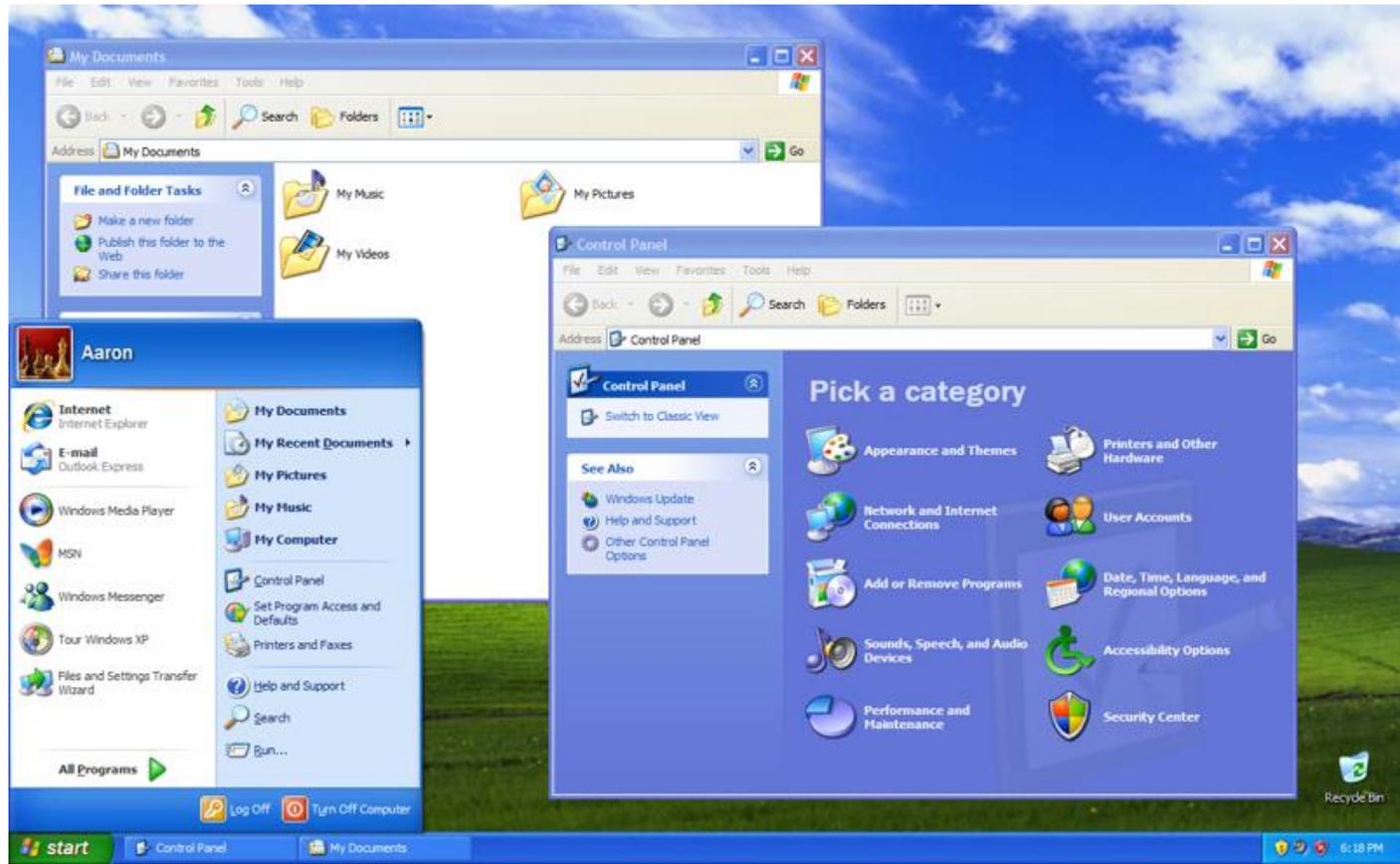
- 1995 – **Windows 95**: Revamps Win 3.1 interface, introduces task bar and Start button



- 1998 – **Windows 98**: Integration with Web, IE is bundled with OS (controversy)



- 2001 – **Windows XP** – Product activation, GUI enhancements, support for 64-bit processors



- 2001 – Apple revamps GUI with **MacOS X** (BSD Unix core)



Image: http://theoligarch.com/microsoft_vs_apple_history.htm

- 2002 – *Minority Report* popularizes gesture UI



[2010 TED talk by John Underkoffler](#)

- 2005 – **Ajax** technique coined by Jesse James Garrett, sparks move from desktop apps to web apps

- 2007 – Apple’s **iPhone** popularizes the touch screen interface



- 2008 – **HTML5** working draft proposes UI elements to match desktop app functionality
- 2010 – **Windows 7** introduces few UI tweaks but is commercially successful
- 2010 – Apple's **iPad** brings touch screen interface to the tablet

- 2010 – [Apple files lawsuit](#) against HTC (maker of Android phones) claiming 20 patents were violated, some related to iPhone's UI

“[We] think competition is healthy, but competitors should create their own original technology, not steal ours.”



- 2012 – MS ditches skeuomorphs in **Windows 8** and brings **Metro** touch-screen UI to the desktop



Image: http://en.wikipedia.org/wiki/File:Windows_8_start_screen.png