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CPSC 3720
Lesson 2

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Welcome

- Brief recap – any questions?
- Software is Eating the World
- Software Engineering History
- Next Class

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Software is eating the world!

- Breakout into 10 teams
- For 10 minutes, discuss what areas of life that software will not be a part of- can you think of any?
- Report back your findings – choose 1 person to represent the team – I will pick a few teams to report back

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History of Software Engineering

The Pioneering Era
1955-1965

The Stabilizing Era
1965-1980

The Micro Era
1980-2005

The Cloud Era
2005-now

The Pioneering Era 1955-1965

- New computers were coming out almost every year or two, rendering existing ones obsolete.
- Software programs had to be rewritten to run on these new machines.
- Programmers did not have computers on their desks and had to go to the "machine room".
- Jobs were run by
  - signing up for machine time or by operational staff.
  - putting punched cards for input into the machine's card reader and waiting for results to come back on the printer.
- The field was so new that the idea of management by schedule was non-existent.
- Making predictions of a project's completion date was almost impossible.
- Computer hardware was application-specific. Scientific and business tasks needed different machines.
- Due to the need to frequently translate old software to meet the needs of new machines, high-order languages like FORTRAN, COBOL, and ALGOL were developed.

The Pioneering Era
1955-1965

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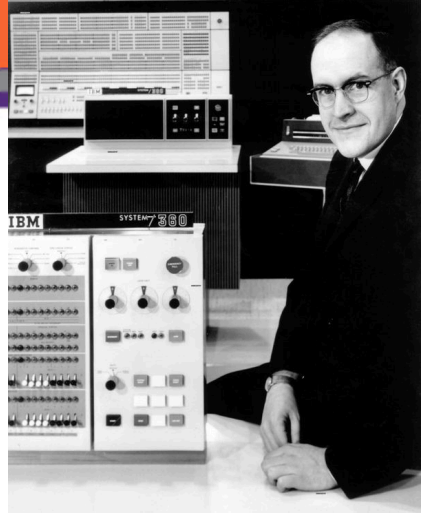
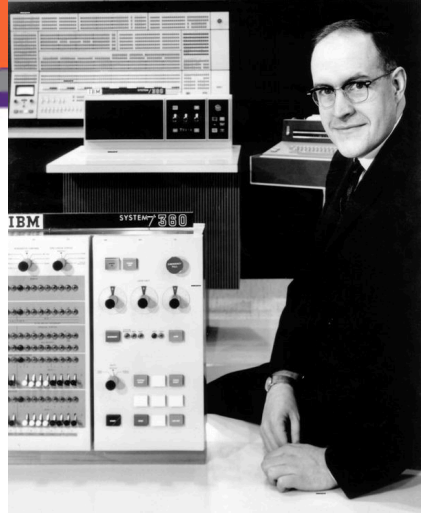
The Stabilizing Era 1965-1980



- IBM 360 signaled the beginning of the stabilizing era.
- Largest software project to date ending the era of a faster and cheaper computer emerging every year or two.
- Software people could finally spend time writing new software instead of rewriting the old.
- The 360 also combined scientific and business applications onto one machine.
- The massive O/S controlled most of the services that a running program needed.
- The notion of timesharing, using terminals at which jobs could be directly submitted to queues of various kinds was beginning to emerge.
- As the software field stabilized, software became a corporate asset and its value became huge.
- Stability lead to the emergence of academic computing disciplines in the late 60's. However the software engineering discipline did not yet exist.
- "Structured Programming" burst on the scene in the middle of this era.
- Standards organizations became control battle grounds. The vendor who defined the standards could gain significant competitive advantage by making the standards match their own technology.
- Programmers still had to go to the "machine room" and did not have computers on their desks.

The Stabilizing Era
1965-1980



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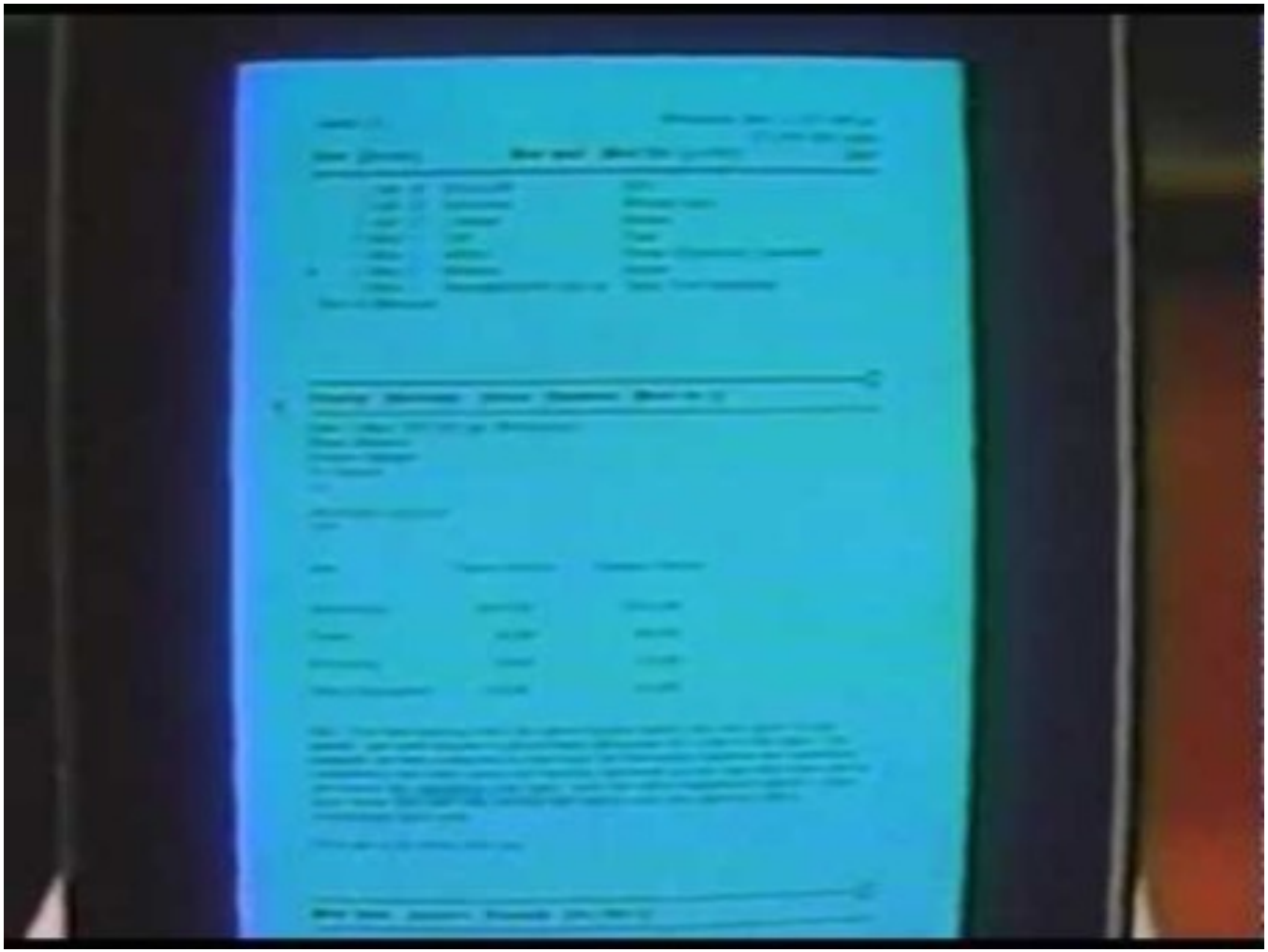
The Micro Era
1980-2005

- The price of computing has dropped dramatically making ubiquitous computing (i.e., computing everywhere) possible.
- Now every programmer can have a computer on his desk.
- The user-friendly GUI replaces command prompt and job control languages.
- UNIX and Windows emerge as the prevalent Operating Systems in the market.
- Many new higher-level languages emerge with Object Oriented languages leading the way.
- Software engineering discipline is matured.
- Applications as monoliths.

The Micro Era
1980-2005



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The Cloud Era
2005-Now

- Software is eating the world!
- Infrastructure moves to the cloud and then applications
- The age of the smartphone
- IoT emerges
- Huge amounts of data is stored in the cloud
- Data Science and AI evolve significantly with the availability of information in the cloud
- Applications evolve to microservices

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Before Next Class

- Reading: Chapter 1 from the The Mythical Man Month https://learning-oreilly-com.libproxy.clemson.edu/library/view/mythical-man-month-the/0201835959/ch01.html