History of Modern Computing

www.soe.ucsc.edu/classes/cmpe080h/Fall06

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Course Description

- A history of the development of computing technologies through the latter part of the twentieth century.

- We will concentrate on several specific views of computing development:
  - Hardware (CPUs and I/O devices)
  - Operating systems
  - Programming languages
  - ...and the people that made all this happen
Course Description

◆ Although the course will use these subjects as the building blocks of the subject matter, its goal is to present the important steps in the development of computing
  • in the context of their times and contemporary technologies.

◆ The course aims to give students
  • an appreciation for the tremendous advances in modern computing during its first half-century
  • an understanding of how the computing world came to be the way it is today
  • a knowledge of the people who made it happen
Required Reading

- Paul E. Ceruzzi: "A History of Modern Computing (Second Edition)"

- Covers modern computing from the development of the first electronic digital computer through the dot-com crash.
- Concentrates on five key moments of transition
  - the transformation of the computer in the late 1940s from a specialized scientific instrument to a commercial product
  - the emergence of small systems in the late 1960s
  - the beginning of personal computing in the 1970s
  - the spread of networking after 1985
  - the period 1995-2001
    - the Microsoft antitrust suit, the rise and fall of the dot-coms, and the advent of open source software, particularly Linux
“History is a chronology of facts, but the word history contains the word story in it, and telling stories is not rendered obsolete by technology.”

- So, the real goal of the course is to tell the story of computing
  - in a way that everyone can relate to and use as a basis for their ongoing work with this technology
- …and, to have fun doing it
Required to Pass the Class

- Demonstrated understanding of the assigned reading and lectures (though exams)

- Completion of two writing assignments on the following subjects:
  - In-depth report on a specific technology or person covered in the course
    - (e.g., one computer system, OS, language, or person)
  - OR: Small programming project(s) in some language(s) covered in the course
    - not compiled, just turned in and graded
    - should be pre-approved by the instructor (me)
About the Instructor

- Have worked with computers since 1970
  - Includes 30 of the 60 years we will cover in the class
  - Mainframes, minis, micros (a.k.a. PCs), embedded and special-purpose systems

- Full-time employee of IBM
  - At Almaden Research Center, CS Department
    - But not a “career IBMer”
  - Only on campus for class and office hours:
    - Thursdays, 12:30-1:30 in E2-237B
    - Other times by special request?
  - Email: pease@cse.ucsc.edu
Subjects we will cover

- Computing hardware evolution from the 1940s through the 1990s
  - Electronic technologies from which computers are built
  - Computing (CPU) development
  - I/O device technologies and development
- Operating system evolution from the same time period
  - Origin and purpose of operating systems
  - Types of operating systems
  - Genealogies of common modern operating systems
- Programming language development for that period
  - Early approaches to programming computers and the need for better tools
  - The development of languages designed for specific tasks
  - The development of general-purpose languages
  - Genealogies of common modern programming languages
- A discussion of the ways in which technological developments have changed the computer, and how those changes have in turn changed our society.
Course Schedule

- Midterm Exam, October 31 (Halloween!) in class
- Thanksgiving holiday, November 23rd
- Last day of class, November 30th
- Final Exam, week of December 4th

- Possible field trip to Computer History Museum in Mountain View
  - On a Saturday?
Keeping in Touch

✦ Come to class! 😊

✦ Read the class web page:
  • www.soe.ucsc.edu/classes/cmpe080h/Fall06
  • I will post class materials there

✦ If needed, I will set up a class mailing list that you can read or subscribe to
  • However, I don’t expect to need it
Academic Honesty

- You are expected to adhere to the highest ethical standards.
- All work you submit *must* be your own.
- Plagiarism of any form is unacceptable.
  - You must give credit where it is due.
- Otherwise:
  - A letter will be sent to the Department, to the School of Engineering and to your Provost, and you will fail the course.