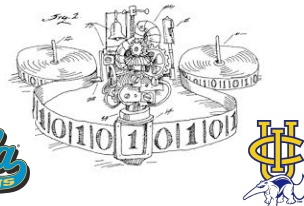# Introductions, Pre-history of Computing and Number Systems

CSCI 10 - Santa Clara University - Fall 2016
Michael J. Bannister
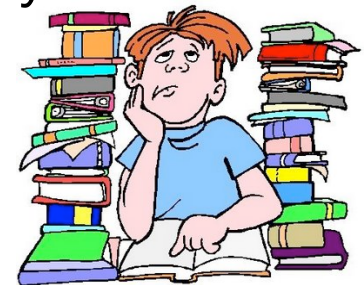

Introductions

Who am I really?

Who are you?

- Name?

- Major? Year?

- Do you have any programming experience?

What is this course?

In this course you will learn:

- algorithmic problem-solving skills

- to write simple programs solving real problems

- about the impact computing has on society

(syllabus/webpage)

Your responsibilities

- Come to every class and lab meeting

- Do not use laptops during lecture unless told to do so

- You **must** bring a laptop to lab

- Spend two hours outside of class for every hour in class

- Ask questions right away when confused!

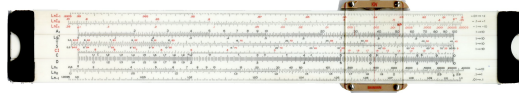Any questions about the course?

Note Taker Needed

Benefits:

- Small stipend

- Letter of Commendation

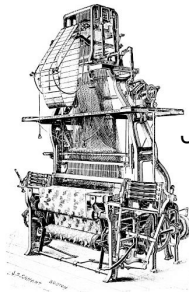If you are interested, email me ASAP.

Pre-history of computing

Early Computational Tools

Slide Rule (1600s)
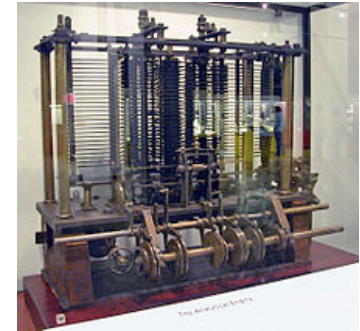William Oughtred;John Napier

Abacus (~500 BC)

Jacquard Loom (1801)
Joseph Marie Jacquard

Analytic Engine

- Designed by Charles Babbage in 1837

- First proposed general-purpose computer

- Essentially the same design as a modern computer

- To complicated to build at the time

Digital Circuits

- In 1705 Gottfried Wilhelm Leibniz showed, using binary numbers, that the rules of arithmetic and boolean logic could be combined

- In 1937 Claude Shannon showed that electrical circuits were capable of expressing boolean logic
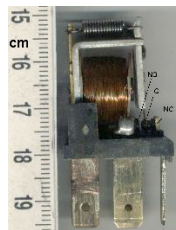
Combined we have the 1st step to modern computers!

Number Systems

Base Conversion

- Today people like to work with numbers in base 10

- Computers like with with numbers in bases:
  2 (binary), 8 (octal), 16 (hex), 32 and 64

- Conversion is not hard but will require practice

(examples on board)