Week04

* Transistor
  + 1954
  + first silicon transistor
  + It amplifies signals
  + PNP + NPN
  + + - + semi-conductor
* 1959
  + first integrated circuit
* 1971
  + first CPU intel 4004 (Central Processing Unit
* 1978
  + microprocessor
  + intel 8086/8088
* 1980
  + Dramatic technological change
  + > 1000000 transistors
  + first VLSI chip
* Today
  + ~800M transistors, ~ 14nm, ~ 4.5 GHz
* Compiler
  + It builds and executes
  + Scans the entire program and translates it as a whole into machine code
  + Require more memory
  + C/C++, java, c#
  + Source code -> processing -> object code -> processing -> machine
* Interpreter
  + Line by line one statement at a time
  + Less amount of time, but overall slower
  + Debugging is easy
  + Python, ruby
  + Source code -> processing -> intermediate code -> processing -> interpreter