Topics For First Midterm

CS 110-03, Introduction to Computer Science I

Fall, 2011

• Hardware:
  – CPU, ALU, control, main memory, interconnect, peripherals.
  – Registers
  – Operations
  – Binary representation of all information

• Software
  – Programs
  – Machine language, assembly language, high-level language
  – Interpreter, compiler
  – Operating system: time sharing, Linux
  – Text editor

• Linux and the shell
  – Secondary storage
  – Files, directories, folders
  – Root directory, home directory
  – cd, ls, cat, less, pwd
  – redirection
  – command-line options
  – Ctrl-D, Ctrl-C
  – interactive Python shell

• Computer science
  – Algorithms
  – functions
  – call, return
  – arguments (actual arguments), parameters (formal arguments)
- state diagram, stack diagram
- control structures
- execution trace
- infinite loops
- running sum, count
- nested loops
- class, object, instantiation, attribute
- newton's method

**Python**
- print statement
- variables
- types
- assignment
- `str`, `float`, `int`, `bool`
- arithmetic operators
- operator precedence
- `raw_input()`, `float()`, `int()`, `type()` functions
- Python functions
- comments: docstring, #
- Indentation for blocking
- logical/boolean expression
- `if-elif-else`
- comparison operators
- logical operators
- modules, access, documentation
- `None`
- `while` statement
- `for` statement
- `range()` function and lists
- TurtleWorld (don’t memorize functions, attributes)
- string operations, bracket operator, subscript, index, use of `for`