

Ch9-10, Py 10-14 Review

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CMPT14x

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What's on for today: review

- Lectures #25-38:
- Storage issues (M2 ch8)
- Records, Sets (M2 ch9)
- Dictionaries (Py ch11-12)
- Object-oriented programming (Py ch15-17)
- Exceptions (Py tut 8)
- Namespaces and scope (Py tut 9)

Review: Storage (§8.0-8.3)

- Number bases:
 - Binary
 - Hexadecimal (0xBEEF)
 - Octal (0115)
- Units of measure of **memory**:
 - Bits, nibbles, bytes, words, pages
- Units of measure for **hard disks**:
 - C/H/S geometry
- SI **units** vs binary units, KB vs. Kb, etc.

Review: Sets

- Set Theory
 - Membership
 - Union
 - Intersection
 - Difference
 - Symmetric difference
- Sets vs Python **lists**
 - ◆ Don't need to know Python set type
- **Bitsets**

Review: Dictionaries

- Dictionaries
 - Keys and values
 - Basic dictionary methods:
 - ◆ `.keys()`, `.values()`, `.items()`
 - Iterating through dictionaries
 - Other dictionary methods:
 - ◆ `len()`, `del`, `in`, `.get()`, `.copy()`
 - Application: hinting
 - ◆ Fibonacci example

Review: OO

- Using Python **classes** to make records
 - **Attributes**
 - ◆ use **instance** variables, not **class** variables
- **Objects** are **instances** of **classes**, created by **constructor** methods
- **alias** vs. **shallow copy** vs. **deep copy**
- Customizations: `__init__`, `__str__`, `__mul__`, etc.
- **Default** parameters

Review: Exceptions (Py tut 8)

- Exceptions:
 - Handling
 - Raising
 - else
 - finally
 - User-defined exceptions
 - Passing **auxiliary** data with an exception

Review: Namespaces (Py tut §9.2)

■ Namespaces and Scope

- **Purpose**: avoid name conflicts
- **Default** (built-in) namespace
- **Global** namespace for each file/module
- **Local** namespace:
 - ◆ **Function** invocation
 - ◆ **Class** definition
- Namespaces outside local are **read-only**:
 - ◆ **New** names (assignment, import) add to local
 - ◆ **Modifying** makes local copy (except **global** cmd)

Today: review

- Sets (M2 ch9)
- Dictionaries (Py ch10)
- Object-oriented programming (Py ch12-14)
- Exceptions (Py tut 8)
- Namespaces and scope (Py tut 9)

TODO

- Midterm Wed:
 - M2 chs9-10
 - Py ch10-14
- No Lab this week
- HW09 due Fri:
 - Knight's tour on 3x4 board