Lecture 21:
Programming with Subclasses

CS 1110
Introduction to Computing Using Python

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Announcements

• Lab 12 is out.

• Prelim 2
  - Tuesday, April 24\textsuperscript{th}, 7:30-9:00pm
  - Please go to the correct room for your NetID (see webpage)
  - Prelim SDS accommodations or makeup requests: if haven't heard from JLS478 confirming time by today (Tues) noon, and haven't heard from cs1110-prof that we're working on it, contact cs1110-prof@cs.cornell.edu & cc: JLS478@cornell.edu.
  - “Just the Facts” Prelim Study Guide is out
More Announcements

• A3 solutions posted. Grades out quite soon (if not already)
• Academic Integrity:
  ▪ crediting people you got help from is key
  ▪ “the rules” vs. academic integrity
  ▪ better to submit nothing than to submit fraudulently
A4 Announcements

• clarification of spec to map_people_to_positions:
  ▪ don't add an entry in the returned dictionary for vacant or holder-not-specified Positions
• Comment out lines 27-28 in example_chart_scraggly.py
Put Me in the Zoo

• Classes:
  Animal, Bird, Penguin, Parrot

• Attributes:
  num_animals, animal names, tag_no, can_fly, can_speak

• Methods:
  __init__, __str__, set_name
Making Arguments Optional

- We can assign default values to \texttt{\_\_init\_} arguments
  - Write as assignments to parameters in definition
  - Parameters with default values are optional

- **Examples:**
  - \texttt{p = Point3()} # (0,0,0)
  - \texttt{p = Point3(1,2,3)} # (1,2,3)
  - \texttt{p = Point3(1,2)} # (1,2,0)
  - \texttt{p = Point3(y=3)} # (0,3,0)
  - \texttt{p = Point3(1,z=2)} # (1,0,2)

\begin{Verbatim}

class Point3():
    
    """Instances are points in 3d space
    x: x coord [int]
y: y coord [int]
z: z coord [int]  """

    def __init__(self,x=0,y=0,z=0):
        """Initializer: makes a new Point
        Precondition: x,y,z are numbers""
        self.x = x
        self.y = y
        self.z = z

    ...
\end{Verbatim}