Lecture 24: Programming with Subclasses

CS 1110

Introduction to Computing Using Python

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Put Me in the Zoo

- Classes: Animal, Bird, Fish, Penguin, Parrot
- Instances can swim, fly, and speak based on class membership

Track:
- # of animals created
- name, tag #, weight for each animal (w/default weights)

Methods:
- print words if animal speaks
- animal eats: print eating sounds and gain 1 pound
Questions to ask

• What does the class hierarchy look like?
• What are class attributes? What are instance attributes? What are constants?
• What does the `__init__` function look like?
• How do we support default weights?
• How do we implement the class methods?
• What does a "stringified" Animal look like? `str(a)`
If `speak` is defined by the `Animal` Class like this:

```python
def speak(self, words):
    if self.CAN_SPEAK:
        print(words)
```

Q2: Which subclasses need to provide their own version of this method?

A: Bird, Fish, Penguin, and Parrot  
B: Bird and Parrot  
C: just Parrot  
D: none  
E: I don’t know
If `eat` is defined by the `Animal` Class like this:

```python
def eat(self):
    print("NOM NOM NOM")
    self.weight += 1
```

Q3: We want Fish to say nothing and Birds to make a pecking sound. Which subclasses need to provide their own version of this method?

A: Bird, Fish, Penguin, and Parrot
B: Bird and Fish
C: just Bird
D: just Fish
E: I don’t know