CompSci 94
Writing Class Procedures
Built-in Functions, Math, Properties
February 5, 2019

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Classes and Objects

• Which one is the object?
Classes and Objects

• Which one is the object?

  object                        class

• An object is an instance of a class
• The class defines the object
• Then you can make lots of objects with the class
Inheritance

• Which is a superclass of the other?
  – Quadruped or Bear?

• If you write a quadruped procedure, who can use it?

• If you write a Bear procedure, who can use it?
Inheritance

• Which is a superclass of the other?
  – Quadruped or Bear?
  – Quadruped is a superclass
  – Bear, cow, etc are subclass of quadruped

• If you write a quadruped procedure, who can use it?
  – Any quadruped

• If you write a Bear procedure, who can use it?
  – Only bears
Built-in Functions

• Where can you use the cow getHeight function in this instruction?
Built-in Functions

• Where can you use the cow getHeight function in this instruction?
  – Over the 1.0 or the 2.0
  – Anywhere there is a decimal number

• Functions calculate a value of a certain type
  – Use the value whether that type is in an instruction
getDistanceTo

• What happens when this executes?
getDistanceTo

- What happens when this executes?
- Moves to center of cow
Lots of built-in functions to use
Use math to adjust

• How do we stop before the cow?
Use math to adjust

• How do we stop before the cow?
  – Use math
  – How does one add the math?
    • On down arrow beside number
How do I get the flamingo to circle around the ostrich?
How do I get the flamingo to circle around the ostrich?

• Use turn with as seen by

  ![Diagram](image)

• Which direction do you pick to go forward?
  – The ostrich is to the flamingo’s left, so turn left
Properties

• What can you do with the paint property?

• What does white paint do?

• What can you do with opacity property?

• What can you do with the vehicle property?
Properties

• What can you do with the paint property?
  – Paint an object that color

• What does white paint do?
  – Means no color, the original colors show through

• What can you do with opacity property?
  – Make something see through or invisible

• What can you do with the vehicle property?
  – Make an object move when another object moves
More on properties

• Where does one make a property permanent?

• What instructions do you get to use with properties?
More on properties

• Where does one make a property permanent?
  – In setup scene

• What instructions do you get to use with properties?
  – A set procedure
  – A get built-in function
Vehicle Property

• Consider

• What happens if the bluebird moves forward?

• What happens if the flamingo moves forward?
Vehicle Property

• Consider

![Image of UI elements: `this.bluebird` set `Vehicle` to `this.flamingo`]

• What happens if the bluebird moves forward?
  – Nothing else happens

• What happens if the flamingo moves forward?
  – The blue bird moves forward with it
Announcements

• Assignment 3 due tonight.
• Assignment 4 out.
• Exam 1 is Feb. 19.
Class Today

- Using properties, built-in functions and math
- Creating class procedures