Object, Classes, Methods

- Classes define
  - the state (data), usually private
  - behavior (methods) for an object, usually public
- There can be many objects created based on a class.
- Method – sequence of instructions that access the data of an object
  - Accessor – access, don’t change data
  - Mutator – changes the data

Example - class Chicken

- State
  - weight, height, name
- Behavior (methods)
  - Accessor methods
    - getWeight, getHeight, getName
  - Mutator methods
    - eat – adds weight, adds some height if under 12.0
    - sick – lose weight
    - changeName
Constructing Objects -

new

• Create three chickens
  – “Fred”, weight 2.0, height 3.8
  – “Sallie Mae”, weight 3.0, height 4.5
  – “Momma”, weight 6.0, height 8.3
• Use Chicken constructor
  Chicken one = new Chicken(2.0, 3.8, "Fred");
  Chicken two = new Chicken(3.0, 4.5, "Sallie Mae");
  Chicken three = new Chicken(6.0, 8.3, "Momma");

Another Class - String

• Use the API methods for String class
  – To get to API from CompSci 6 web page
    • Click on “resources”
  • Print length of Chicken one’s name.
  • length is a method in String class.
    System.out.println(one.getName() + " has " +
    one.getName().length() + " letters.");

Object References

• Variable of type object – value is memory location
  one =
  two =

  Chicken
  weight = 2.0
  height = 3.8
  name = "Fred"

  Chicken
  weight = 3.0
  height = 4.5
  name = "Sallie Mae"

one = two;

• Now they reference the same object
  one =
  two =

  Chicken
  weight = 2.0
  height = 3.8
  name = "Fred"

  Chicken
  weight = 3.0
  height = 4.5
  name = "Sallie Mae"
APT – Hinged Door

• Work through a solution in class
• Load in APT and run

Classwork Today - APTs

• Sit in groups
• Login to laptops
• Start Eclipse, create a Java Project
• Enter in a Java class and method
• Test the class/method with an APT
• Repeat with other
• Submit the files with Ambient
• Save the files to your Duke account before logging off (check-in)