CompSci 6
Programming Design and Analysis

January 18, 2007
Prof. Rodger
Announcements

- Read next time Chap. 3.1-3.8, Chap 2.11G-2.13G
- Assignment 2 out – due in one week
- Finish Classwork before next class
- Reading Quiz for next time
- Consulting Hours will start soon
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");
Object References

- Variable of type object – value is memory location

```
one = 

two = 

<table>
<thead>
<tr>
<th>Chicken</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>weight</td>
<td>2.0</td>
</tr>
<tr>
<td>height</td>
<td>3.8</td>
</tr>
<tr>
<td>name</td>
<td>&quot;Fred&quot;</td>
</tr>
</tbody>
</table>

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</tr>
<tr>
<td>name</td>
<td>&quot;Sallie Mae&quot;</td>
</tr>
</tbody>
</table>
```
one = two;
• Now they reference the same object
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.");
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
- If using class laptop, Save the files to your Duke account before logging off (check-in)