

CSSE 220 Day 18

Inheritance recap
Object: the superest class of all
Inheritance and text in GUIs

Check out *MoreGUIness* from SVN

Questions?

Inheritance Review

»» A quick recap of last session

Inheritance Review

- ▶ Sometimes a new class is a **special case** of the concept represented by another
- ▶ The new class **inherits** from the existing one:
 - all methods
 - all instance fields
- ▶ Change just what we need
 - Don't redeclare fields!
 - Don't redeclare methods which are good enough
 - But overload ones that aren't
 - Make use of `super.method` and `super()` as needed.



Polymorphism Review

```
Shape circle = new Ellipse2D.Double(x, y, 20, 20) // OK
```

vs:

```
Ellipse2D.Double circle = new Shape(); // Why not?
```

- ▶ As an example, `Ellipse2D.Doubles` have `x` coordinates, while `Shapes` do not. The solution? Cast!
`((Ellipse2D.Double) shape).x += xVelocity;`

1, Object

»» The superest class in Java


Object

- ▶ Every class in Java inherits from **Object**
 - Directly and **explicitly**:
 - **public class String extends Object {...}**
 - Directly and **implicitly**:
 - **class BankAccount {...}**
 - **Indirectly**:
 - **class SavingsAccount extends BankAccount {...}**

Object Provides Several Methods

▶ **String toString()**  Often overridden

▶ **boolean equals(Object otherObject)**

▶ **Class getClass()**  Sometimes useful

▶ **Object clone()** 

▶ ...

Often dangerous!

Overriding toString()

- ▶ Return a concise, human-readable summary of the object state
- ▶ Very useful because it's called automatically:
 - During string concatenation
 - For printing
 - In the debugger
- ▶ **getClass().getName()** comes in handy here...

Overriding equals(Object o)

- ▶ Should return true when comparing two objects of same type with same “meaning”
- ▶ How?
 - Must check types—use **instanceof**
 - Must compare state—use **cast**

```
@Override
public boolean equals(Object object) {
    if (object instanceof THIS_TYPE) {
        THIS_TYPE other = (THIS_TYPE)object;
        // Then compare this and other's fields.
    }
    return false;
}
```

Recall that the cast would throw a new `ClassCastException` if the object isn't `THIS_TYPE`