# Interface Inheritance

CSE 114 INTRODUCTION TO OBJECT-ORIENTED PROGRAMMING

#### Announcements

Midterm 3:

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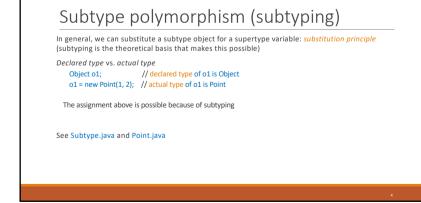
- Exam: 23-May Review: 21-May
- Covers: primarily material from after exam 2 (Arrays of Objects) up through lecture and lab on inheritance (next week)

Today: Subtyping, interface inheritance

Reading assignment for this slide set: the lecture notes

#### 1

### java.lang.Object class Every Java class inherits Object as its parent class Object is a superclass of any and every class that we create • e.g., Point is a subclass of Object We also say that • Object is a supertype of Point Point is a subtype of Object A variable of supertype can hold a subtype object A variable of subtype cannot hold a supertype object. Why not?



#### Inheritance

Interface inheritance

Subtype inherits only the interface of its supertype

Implementation inheritance

 Subtype inherits both interface and implementation of its supertype

## Interface inheritance

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An interface is really a new type that we are defining, much like the type that gets created when we define a class.

We can use the interface name, Shape here, as the type of a variable. This also means that if a class *'implements'* this interface, the class **MUST** implement ALL the methods that are declared in the interface to be able to act as a complete class.

The methods declared in an interface are declared as abstract. These *abstract* methods become *concrete* when they are implemented in a class that inherits the interface.

See Shape.java, Circle.java, Rectangle.java, Box.java, Point.java, UseShape.java

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Sorting and searching (revisited)

Now that we understand interfaces, let us redo sorting an array of objects using the Comparable interface.

See sorting\_objects\_2/Point.java Selection.java ArrayTools.java

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