

### "this" Reference

• Reserved keyword

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- Refers to object through which method was invoked
- · Allows object to refer to itself
- Use to refer to instance variables of object

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7

Inheritance
 Definition

 Relationship between classes when state and behavior of one class is a subset of another class

 Terminology

 Superclass / parent ⇒ More general class
 Subclass ⇒ More specialized class

- · Forms a class hierarchy
- · Helps promote code reuse

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## "super" Reference

- Reserved keyword
- · Refers to superclass
- Allows object to refer to methods and encapsulated data in superclass
- Examples

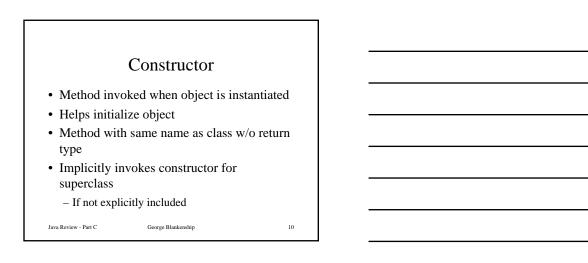
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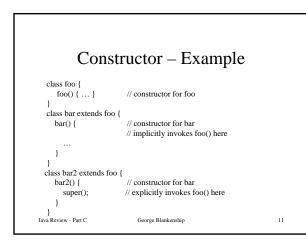
- super.x // accesses x in superclass
- super() // invokes constructor in superclass
- super.foo() // invokes method foo in superclass

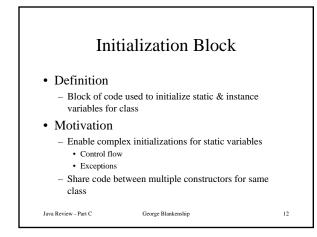
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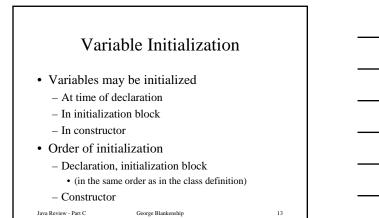
9

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### Garbage Collection

- Concepts
  - All interactions with objects occur through reference variables
  - If no reference to object exists, object becomes garbage (useless, no longer affects program)

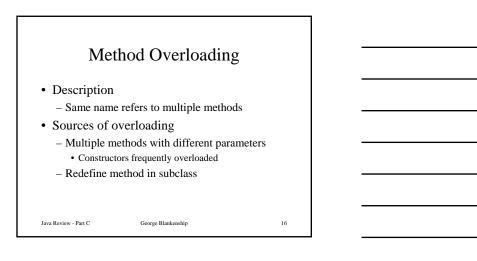
14

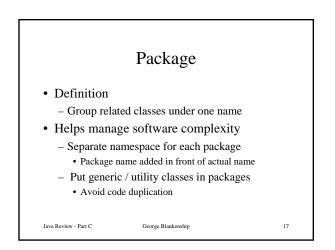
- · Garbage collection
  - Reclaiming memory used by unreferenced objects
  - Periodically performed by Java
  - Not guaranteed to occur
  - Only needed if running low on memory
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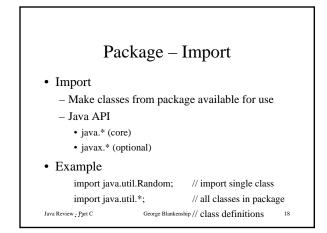
### Destructor

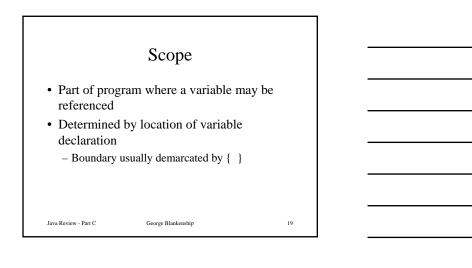
- Method with name finalize()
- · Returns void
- Contains action performed when object is freed
- Invoked automatically by garbage collector

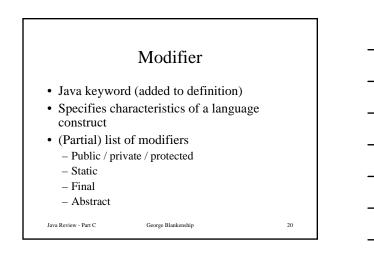
   Not invoked if garbage collection does not occur
- Usually needed only for non-Java methods Java Review Part C George Blankenship 15

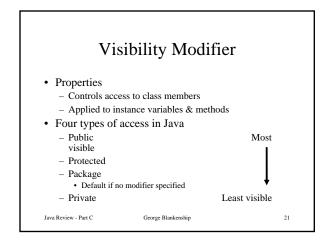


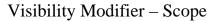












- "public"
  - Referenced anywhere (i.e., outside package)
- "protected"
  - Referenced within package, or by subclasses outside package
- None specified (package)
  - Referenced only within package
- "private"
  - Referenced only within class definition
  - Applicable to class fields & methods
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- · For instance variables
  - Should usually be private to enforce encapsulation
  - Sometimes may be protected for subclass access
- For methods
  - Public methods provide services to clients
  - Private methods provide support other methods
  - Protected methods provide support for subclass

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# Modifier – Static

- Static variable
  - Single copy for class
  - Shared among all objects of class
- · Static method
  - Can be invoked through class name
  - Does not need to be invoked through object
  - Can be used even if no objects of class exist

– Can not reference instance variables Java Review - Part C George Blankenship

24

22

23

Ν	Iodifier – Final	
<ul> <li>Final static variable         <ul> <li>Used for constants</li> </ul> </li> <li>Final method</li> </ul>	every constructor inal are caught at compile time verloaded by subclass	
<ul> <li>Final class         <ul> <li>Class can not be a su</li> <li>Methods in final class</li> </ul> </li> </ul>	perclass (extended)	
Using final classes     Prevents inheritance     May be useful for     Security     Object oriented d		
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