

Inheritance

The Final Keyword



Final Keyword

- A `final` variable...
- A `final` method...
- A `final` class...



Final Keyword

- A `final` variable...
 - Cannot be reinitialized
- A `final` method...
 - Cannot be overridden
- A `final` class...
 - Cannot be inherited



Cannot be
REDEFINED

<http://docs.oracle.com/javase/tutorial/information/glossary.html#final>



Final Classes

- Protects class from modification
 - Used to preserve immutability
 - Used to for singleton pattern (discussed later)
- Includes many core classes in Java
 - String, Math, System, Integer, ...

<http://docs.oracle.com/javase/tutorial/java/landl/final.html>



Final Methods

- Protects an individual method from being overridden
 - Protects `public` and `protected` methods
 - What about `private` methods?
- Used when method behavior **must** remain consistent
 - e.g. methods called within a constructor
- Examples include `Object.getClass()`



Final Variables

- Must be immediately initialized, or initialized in constructor
- For primitive types, results in a constant value
- For objects, only prevents reference from changing
 - Results in a constant if object is immutable
 - May still modify values stored by mutable objects

<http://www.ibm.com/developerworks/java/library/j-jtp1029/index.html>



Final Guidelines

- Use `final` **liberally** for members
 - Makes assumptions explicit and captures when that assumption is broken
- Use `final` **sparingly** for methods
- Use `final` **rarely** for classes
 - Reduces reusability of code

<http://www.ibm.com/developerworks/java/library/j-jtp1029/index.html>





CHANGE THE WORLD FROM HERE