

Grouping Classes Within a .java file

- A single .java file may contain multiple classes BUT at most one public class
- If a file contains a public class... the file name *must* match the class name (case sensitive)
- Normal practice: put only very tightly related classes in the same file When in doubt, use more than one file
- Compiler will still generate a separate .class file for each class in a java file
- A class can be nested (defined) inside another class Called "inner classes" – we will *not* use these in CSE143 at present

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Packages Packages provide another way to group collections of related classes and interfaces A package defines a separate namespace to help avoid name conflicts Can reuse common names in different packages (List, Set, ...) Provides a way of hiding classes needed to implement the package but that should not be used by client code





Import Declarations (1)

- Can import a single type by giving its fully qualified name import java.awt.Color;
- Can import all types in a package using the package name import java.util.*;

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- Have to import each package individually can't import several in a single import declaration
- Example

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- import java.*;
- only imports top-level names in java.*
- To import, e.g., ArrayList, need to have (also)
 import java.util.*

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• java.awt – original graphical user interface (GUI)

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· javax.swing - extension of awt, more sophisticated GUI

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Version	#packages	# classes/interfaces
1.0	8	212
1.1	23	504
1.2	60	1781
1.3	77	2130
1.4	136	3020
1.4 Source: <i>The Java</i>	136 Developer's Almanac	3020 1.4, Patrick Chan

Class Paths

- The Java VM must know where to find classes at run-time
- The class path is a list of the directories which the JVM will search when looking for a class to load.
- Exercise: Open up DrJava or your favorite IDE. Find out what the class path is. Compare that with what your classmates report.
- Tricky thing: The class path does not contain the package, but the directory in which the package is found

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Many IDE's have a "project" facility

- A way of grouping files needed for a particular application
 May include .java files, .class files, directories, data files, images,etc.
 - May include entire packages
- Definition of "project" depends on a particular IDE
- Can a file be part of more than one project?
 - it depends

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• Can a package might be used in more than one project? • it depends

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