CS 2334: Lab 4
Inheritance and Polymorphism

Class Inheritance

- We have already studied “has-a” relationships between classes: one class containing references to other classes
- Class inheritance captures the idea that one class “is-a” special case of another class
- Terminology:
  - Child class or subclass
  - Parent class or superclass

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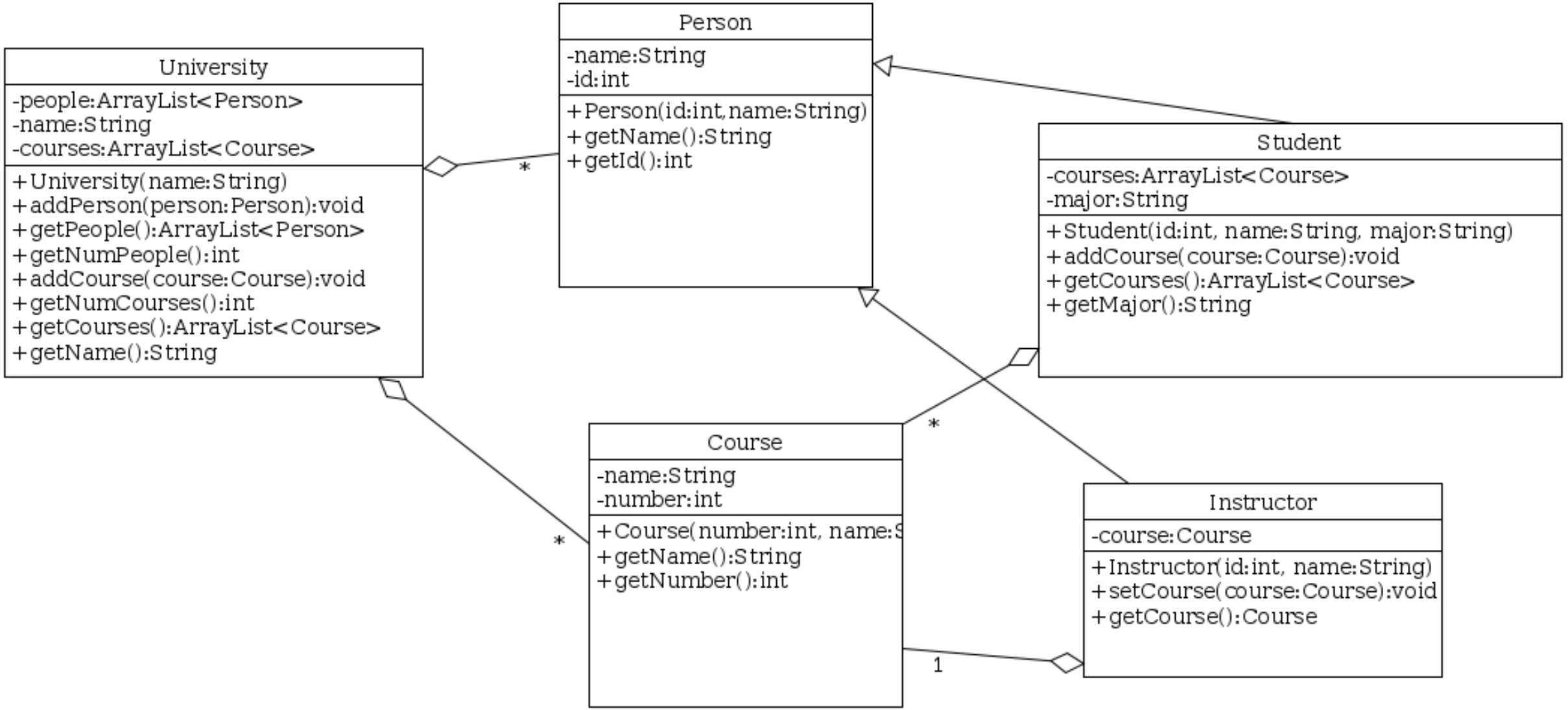


Implementation: Is-a vs Has-a

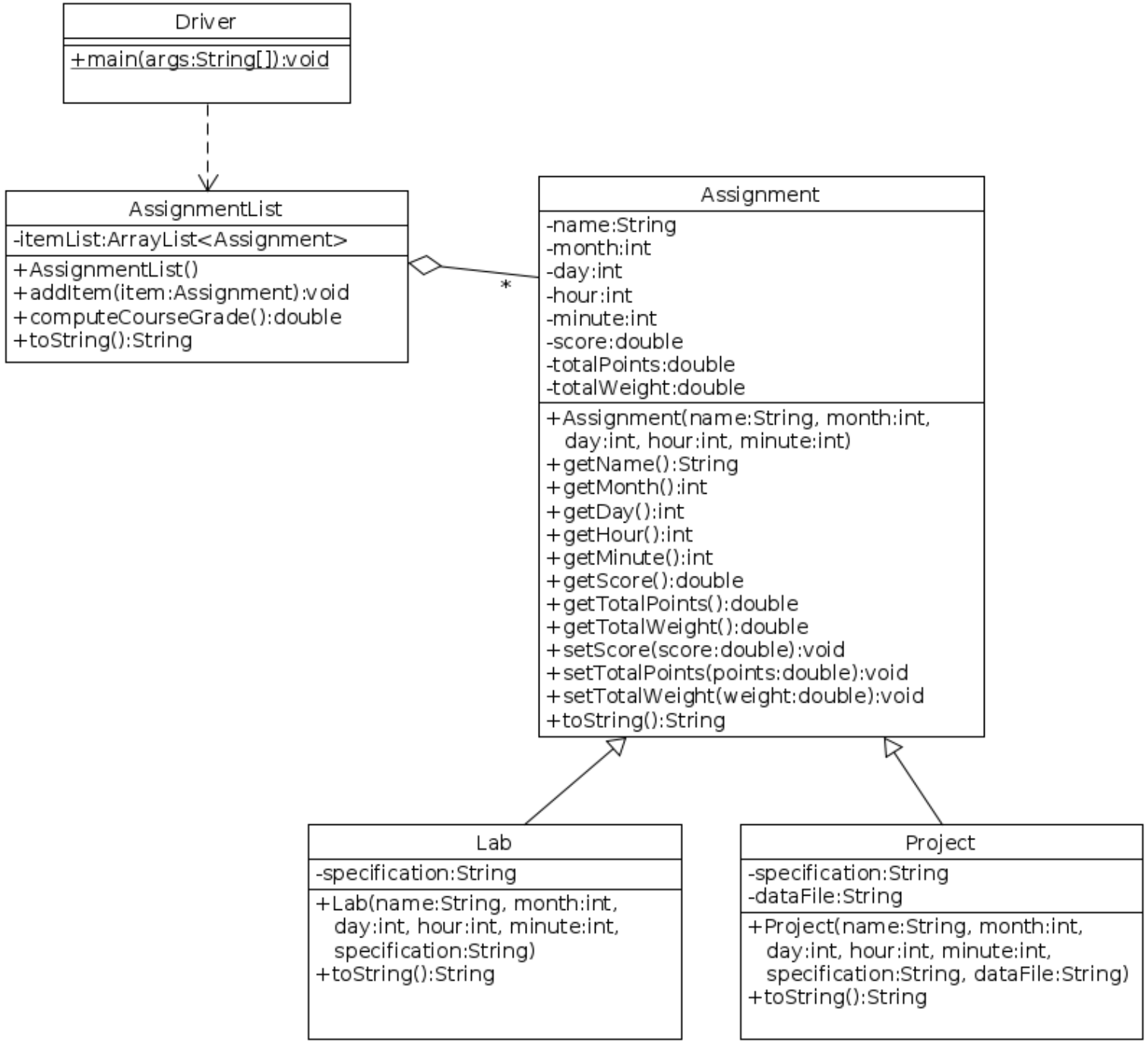
- Inheritance (is-a):
  - Use *extends* keyword in the definition of the class
  - Use *super* keywords to refer to methods and properties defined by the superclass, if needed

- Composition/aggregation (has-a):
  - No special keywords
  - But: include object references as instance variables

Lab 4 Preparation

- Download lab4.zip
- Import into your Eclipse project

(details of how to do this are in the lab specification)


Driver
+main(args:String[]):void
AssignmentList
-itemList:ArrayList<Assignment>
+AssignmentList()
+addItem(item:Assignment):void
+computeCourseGrade():double
+toString():String
*
Assignment
-name:String
-month:int
-day:int
-hour:int
-minute:int
-score:double
-totalPoints:double
-totalWeight:double
+Assignment(name:String, month:int,
day:int, hour:int, minute:int)
+getName():String
+getMonth():int
+getDay():int
+getHour():int
+getMinute():int
+getScore():double
+getTotalPoints():double
+getTotalWeight():double
+setScore(score:double):void
+setTotalPoints(points:double):void
+setTotalWeight(weight:double):void
+toString():String
Lab
-specification:String
+Lab(name:String, month:int,
day:int, hour:int, minute:int,
specification:String)
+toString():String
Project
-specification:String
-dataFile:String
+Project(name:String, month:int,
day:int, hour:int, minute:int,
specification:String, dataFile:String)
+toString():String

Lab 4

- Create each class in the UML diagram
  - Watch spelling and casing
  - Use the default package
- Implement attributes and methods
  - Classes are dependent on each other, so you will have temporary errors while you implement
- Implement missing test classes

Submission

- Submit only one file: lab4.zip (casing matters)
- Due date: Saturday, September 16th @7pm
- Submit to Web-Cat

Notes

- Rubric for each lab and project tells you what we are specifically looking for when we are grading your assignments
- Don’t forget to:
  - Add documentation where appropriate
  - Run Javadocs **after** your documentation is complete

Review specification

Review provided code (after pause)