CSE 142

Wrap Up and Look Ahead

What Did We Learn in CSE142?

- Objects – a fundamental way of modeling the world
  - Properties
  - Responsibilities
- Implementing objects as instances of classes
- Classes – the fundamental unit of programming in Java
  - State – instance variables for object properties
  - Methods – units of code that implement responsibilities
- Specification and implementation

What Did We Learn in CSE142?

- Variables, types, and expressions
  - Primitive types – int, double, char, boolean, ...
  - Reference (object) types – defined by classes
- Object creation – new and constructors
- Declarations and Scope
- Control flow
  - Making decisions – if
  - Repetition (iteration) – while, for
  - Method calls

What Did We Learn in CSE142?

- Collections (ArrayList) and iterators; arrays
- Some basic algorithms, including binary search, sorting, image processing
- Relationships between classes
  - Inheritance – is-a
  - Superclasses and subclasses
  - Method overriding
- Method overloading
- Introduction to recursion

What Next?

- CSE 143 – Programming II
- Direct continuation of CSE 142, also using Java
- Larger projects, intense, time-consuming...
  ... but rewarding
- 5 credits
- Prerequisite for all further CSE coruses

CSE143 Contents

- Picks up right where CSE142 leaves off
  - New topics, and more depth on others started in CSE142
  - By the end, you'll be able to do whatever you want with standard Java
- Programming topics
  - Full treatment of class relationships, inheritance, interfaces, and types
  - Event-driven programming, user interfaces (Java Swing), callbacks
  - Exception handling
  - Streams, files, I/O (maybe even a little networking)
  - Divide and conquer algorithms using recursion
- Basic data structures and implementations
  - Lists, stacks, queues, trees, dictionaries
  - Implementation tradeoffs and basic algorithm analysis

Beyond CSE143

- Computing-related majors
  - Computer Science (Arts & Sciences)
  - Computer Engineering (College of Engineering)
  - ACMS – Applied Computation & Mathematical Sciences (A&S)
  - I-School (Information technology)
  - Information Systems (Business school)
  - Software Systems (UW Bothell & Tacoma)
- CSE courses for majors and non-majors
- Certificate programs through UW Extension
  (languages, internet, windows, …)

So That's It!

- Why CSE142? Why College?
  - Balancing training for the first job vs education for a 40-year career
- Computing is a half-century old, what will the next 50 years bring?