Introduction to CS2340

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Modern Software Engineering

- ▶ Process
  - ▶ Requirements analysis
  - ▶ Process paradigms (waterfall vs. iterative/agile)
  - ▶ Scrum
- ▶ Practices
  - ▶ Team development
  - ▶ Version control
  - ▶ Testing

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Modern Software Design

- ▶ Object-oriented design
  - ▶ SOLID principles
  - ▶ Design patterns
- ▶ Functional design
  - ▶ Monoids, monads, applicative and traversable functors
  - ▶ Lazy evaluation
  - ▶ Functional state
- ▶ Domain-driven design
- ▶ Software architecture

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Scala!

- ▶ New to CS2340 in 2019
- ▶ Builds on Java – don't worry
- ▶ We'll also level-up in Java
- ▶ Programming assignments will be done in Scala

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Why Scala?

- Learning opportunities
  - Fusion of object-oriented and functional programming
  - Advanced static type system
  - Wide array of language features enabling many design paradigms (OO, functional, reactive, DSLs)

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Why Scala?

Figure 1: Companies Using Scala
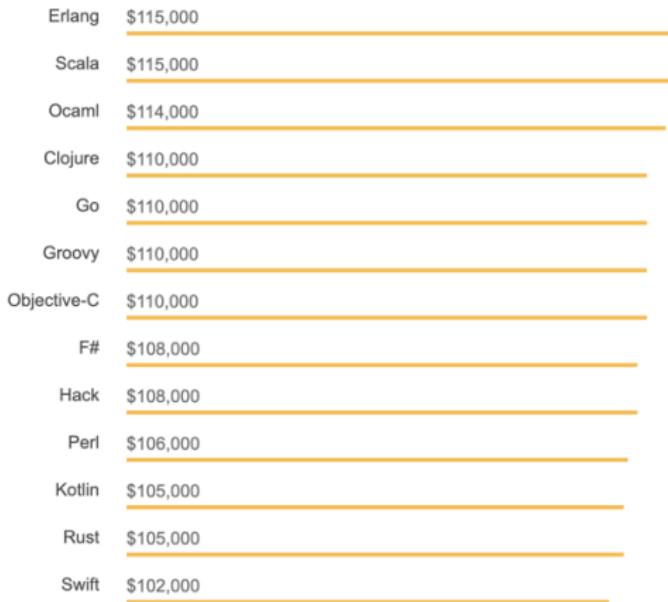
And more every day . . .

Why Scala?

Spark is the darling of the Big Data world. Spark is written in Scala.

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Why Scala?

- ▶ Scala has been the top-paying language in the U.S. for several years.
- ▶ Notice that the top four are all FP languages.

Erlang	$115,000
Scala	$115,000
Ocaml	$114,000
Clojure	$110,000
Go	$110,000
Groovy	$110,000
Objective-C	$110,000
F#	$108,000
Hack	$108,000
Perl	$106,000
Kotlin	$105,000
Rust	$105,000
Swift	$102,000

https://insights.stackoverflow.com/survey/2018/#top-paying-technologies

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Course Logistics

- Syllabus
- Schedule
- Project
- Getting started
- HW0

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