Scala Training Introduction

VALDIS SAULESPURĒNS

- Programming experience: 25+ years
- Education: Masters in Computer Science
- Specialty: Text processing and analysis
- Work: National Library of Latvia
- Teaching: Lecturer at Riga Technical University
- Hobbies: biking, chess, brain games

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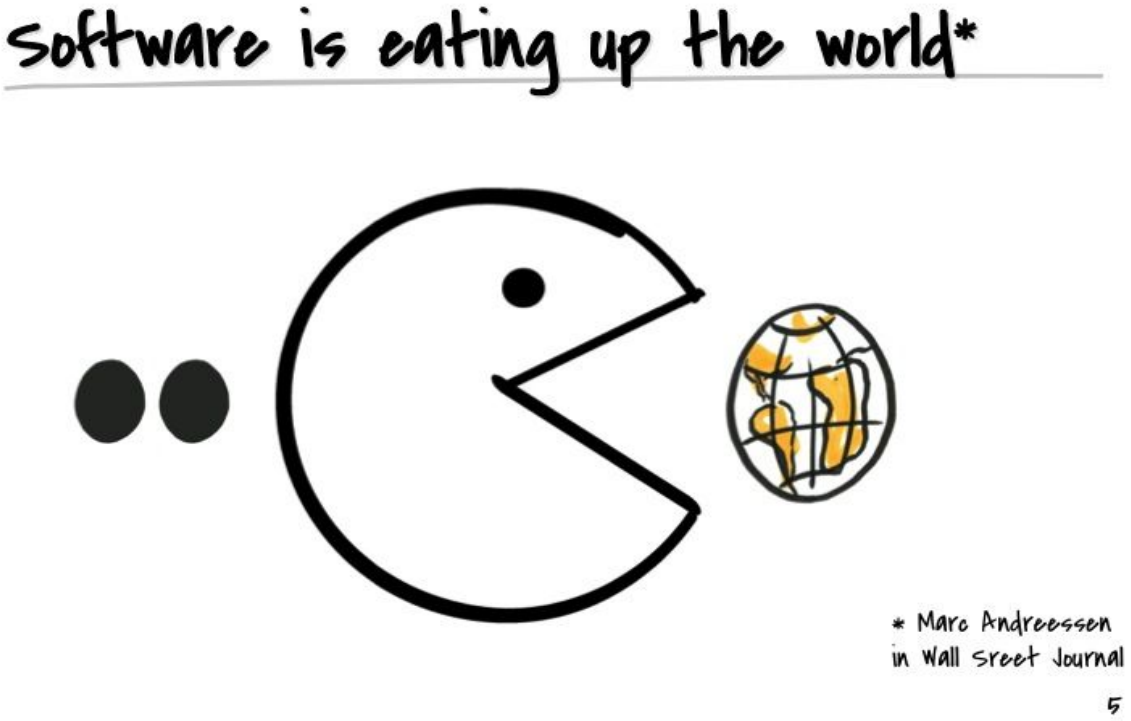
What will I teach?

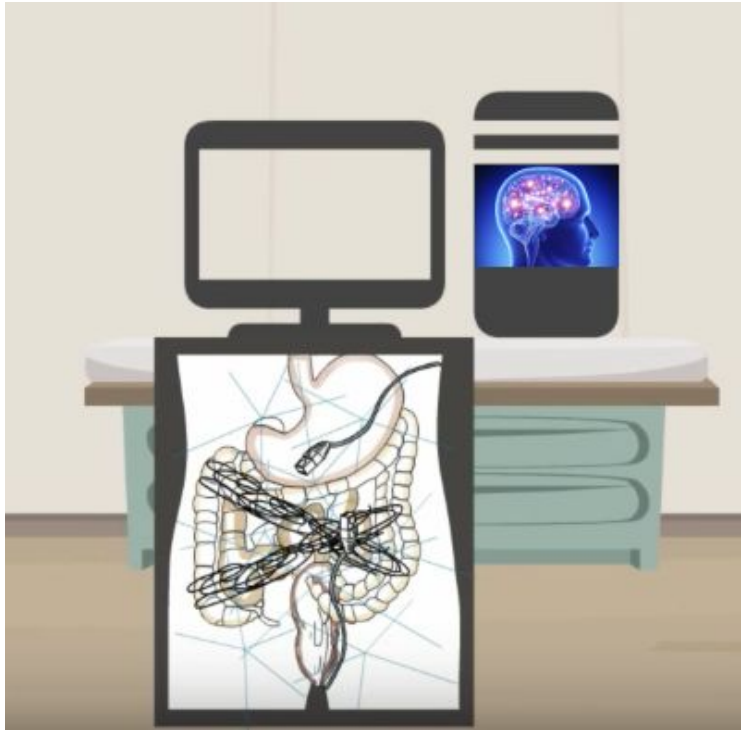
- Basics of programming (Scala)
-
- How to make computer do what we want
- How to divide any problem
- Automate the boring stuff!

Software is eating up the world

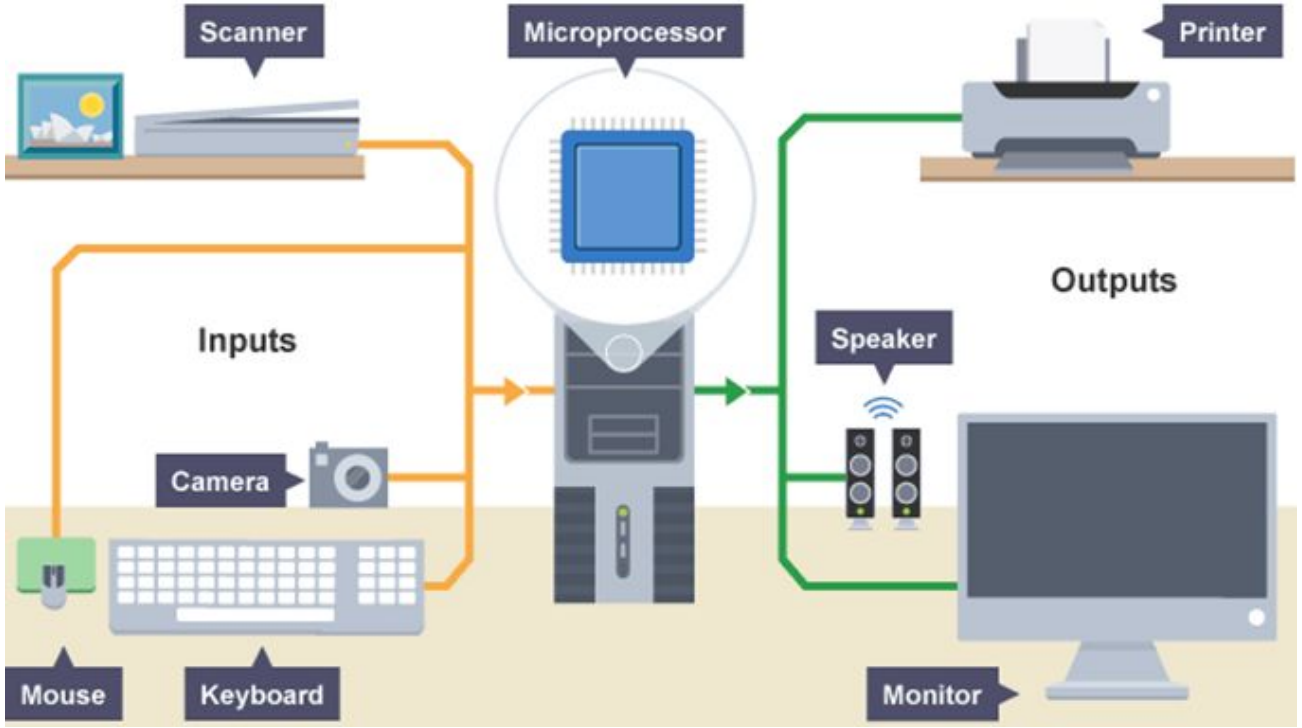


Data

Computer = very demanding and exact child



… eats all that we feed it

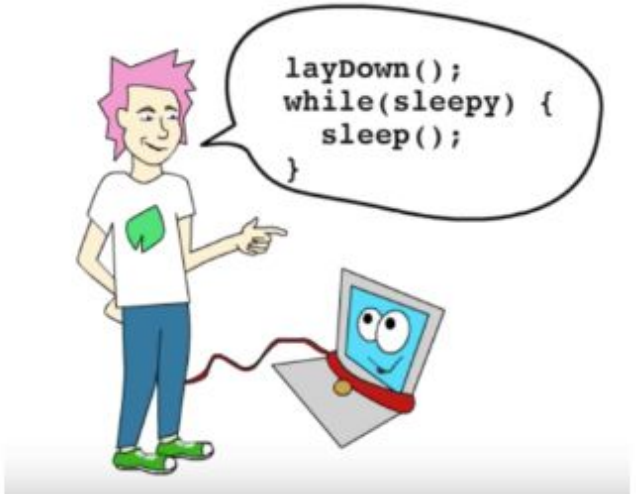


How to converse?

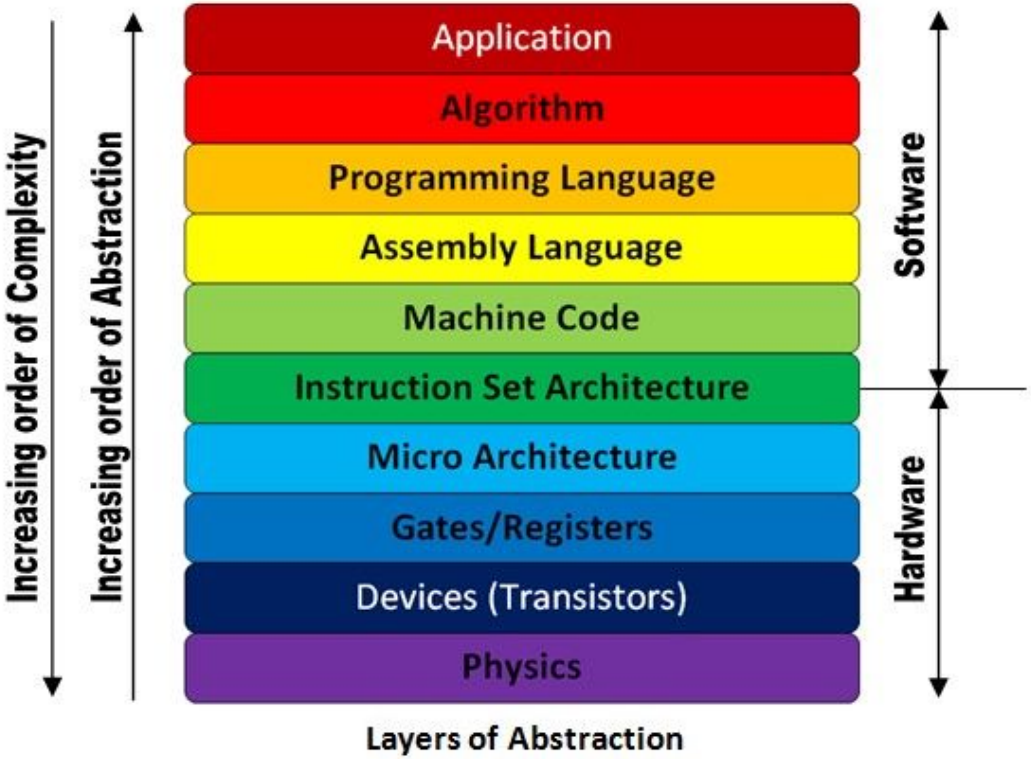
“Welcome to The Matrix”

Mašīnkods

Cilvēkam lasāms kods



Abstraction



Brief History of Computing and Data

- What is this ? :)

Brief History of Computing and Data

- ~ 18,000BC – Uganda, Ishango Bone
- ~ 2400BC – Babylon abacus, libraries
- 300BC – 48AD – Library of Alexandria

Brief History of Computing and Data

- How about this modern recreation of a 2000 years old device?

Brief History of Computing and Data

- **~ 100-200AD**
  Antikythera Mechanism

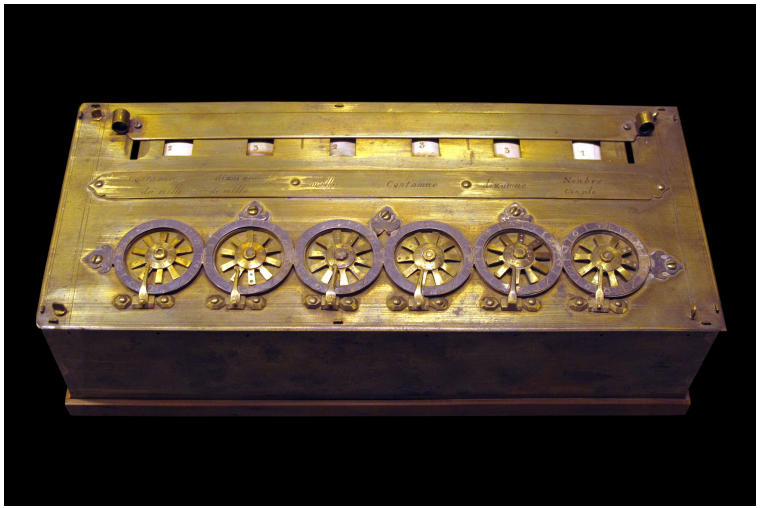
  Predicting:
  - Astrology
  - Astronomy
  - Olympics
  - Calendar

Brief History of Computing and Data

- **1642 Blaise Pascal's Pascaline**

Performs:

- Addition
- Subtraction
- Multiply/Divide using Add/Sub
- 1649 Royal Patent by Louis XIV

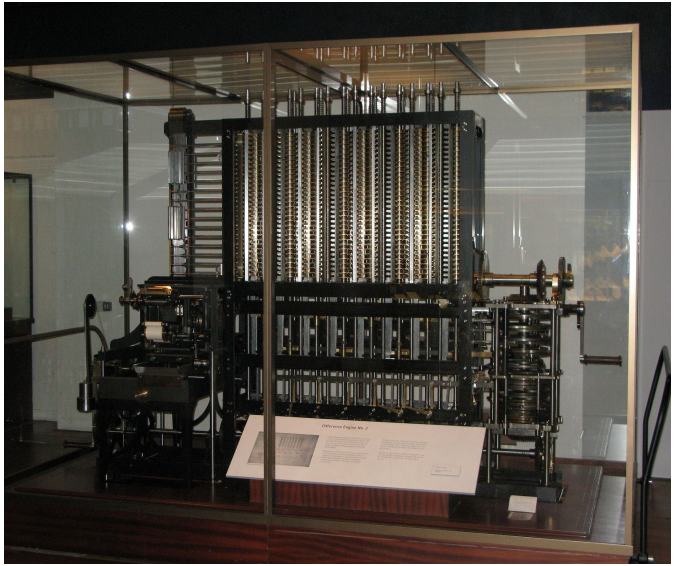


Brief History of Computing and Data

- **Charles Babbage Difference Engine**

Performs:

- Arithmetic
- Derivation
- Power Series
- Curve Fitting



Brief History of Computing and Data

- **Ada Lovelace**
  (1815-1852)
- First Programmer?

  Popularized:
- Algorithms
- Babbage's Machines
-

Brief History of Computing and Data

- **Alonzo Church**
  (1903-1995)
- **λ(lambda)-calculus - functional programming**

1930s

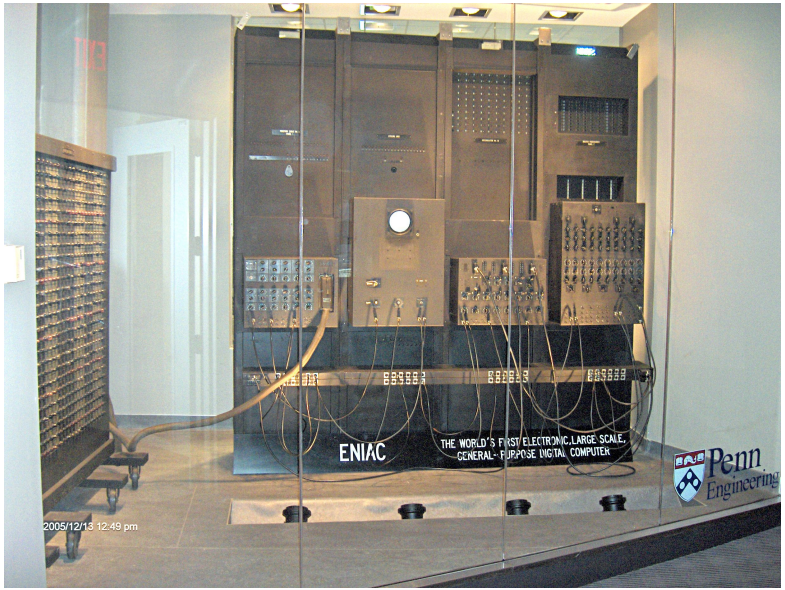
- Church–Turing thesis
- Princeton (Godel, Turing, von Neumann)

Brief History of Computing and Data

- 1940s - First General Purpose Electronic Computer ENIAC (Zuse mechanical)

- Turing complete
- von Neumann architecture

- most computers work the same today



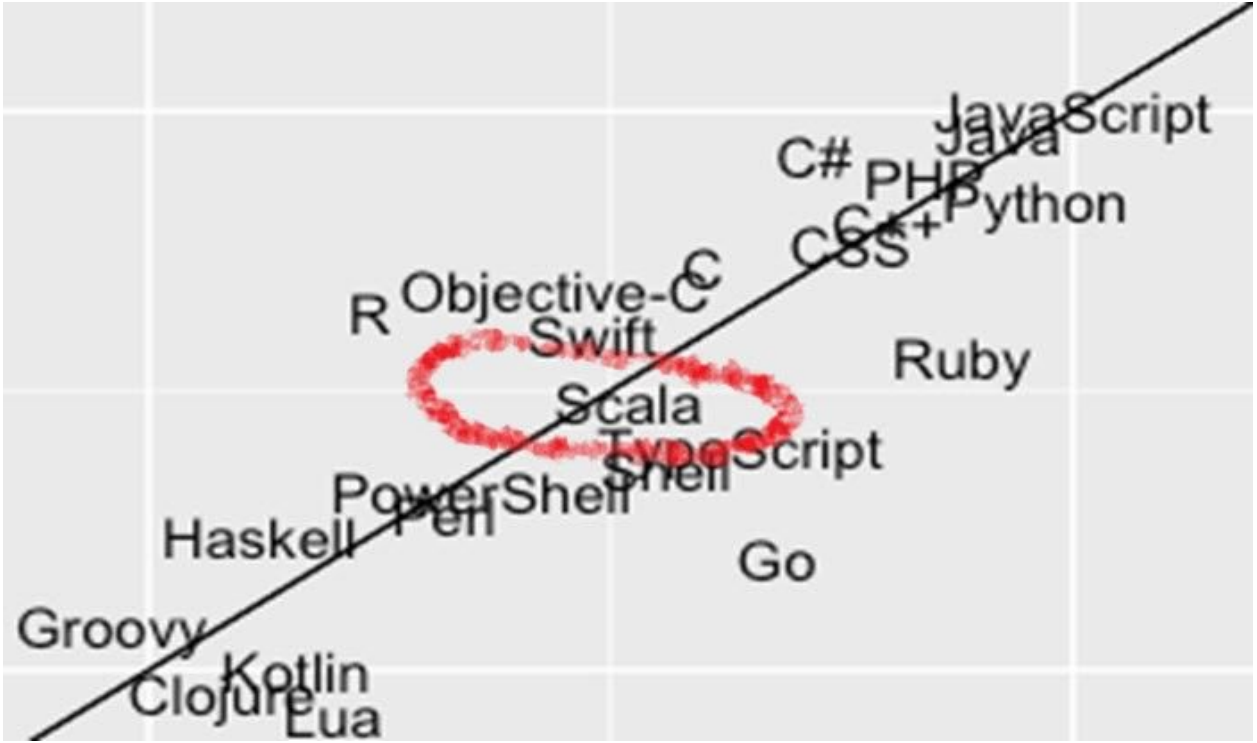
Brief History of Computing and Data

- 1950s - Flat Files
- 1958 – IBM's Luhn defines Business Intelligence
- 1960s - CODASYL
- 1970s – Codd's relational DBs -> SQL
- 1980s – Data Werehouses / Marts
- 2000s – Big Data / noSQL DBs
- 2010 - Cloud services / AWS / GCP / Azure

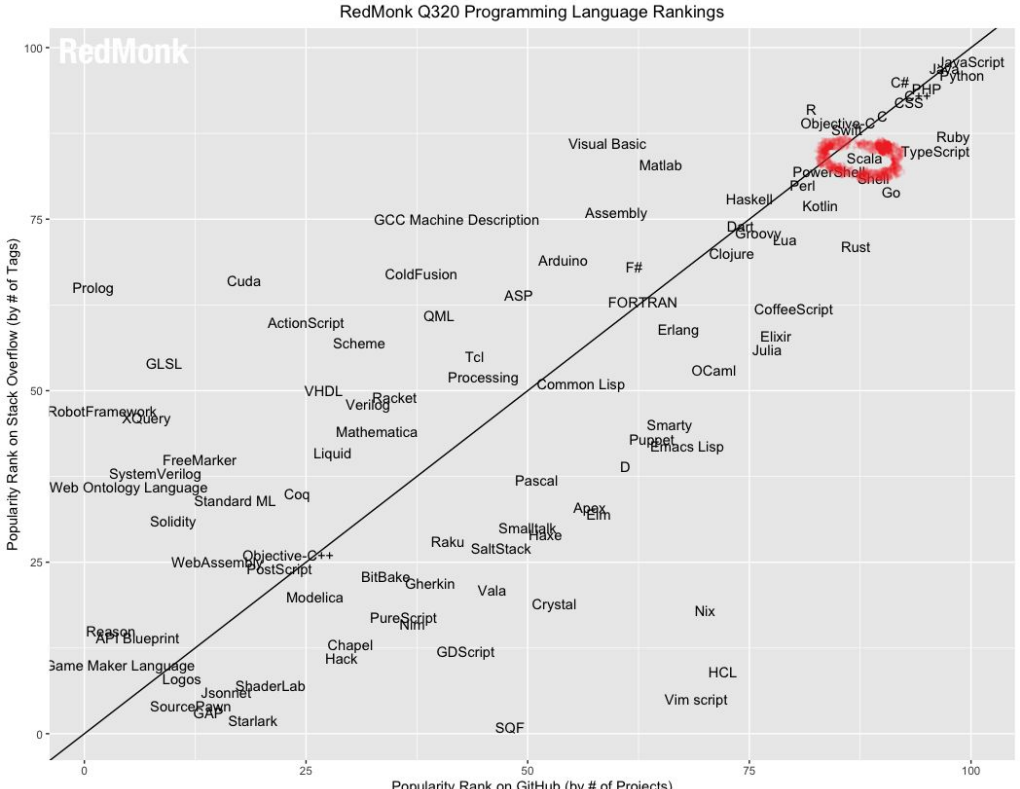
Programming Language history

- 1940s: connecting wires to represent 0s and 1s
- 1950s: assemblers, FORTRAN, COBOL, LISP
- 1960s: ALGOL, BCPL(-> B -> C), SIMULA, PASCAL, BASIC
- 1970s: Prolog, FP, ML, Miranda
- 1980s: Eiffel, C++
- 1990s: Haskell, Java, Python
- 2000s: D, C#, Spec#, F#, X10, Fortress, **Scala**, Ruby
- 2010s: Agda, Coq, …

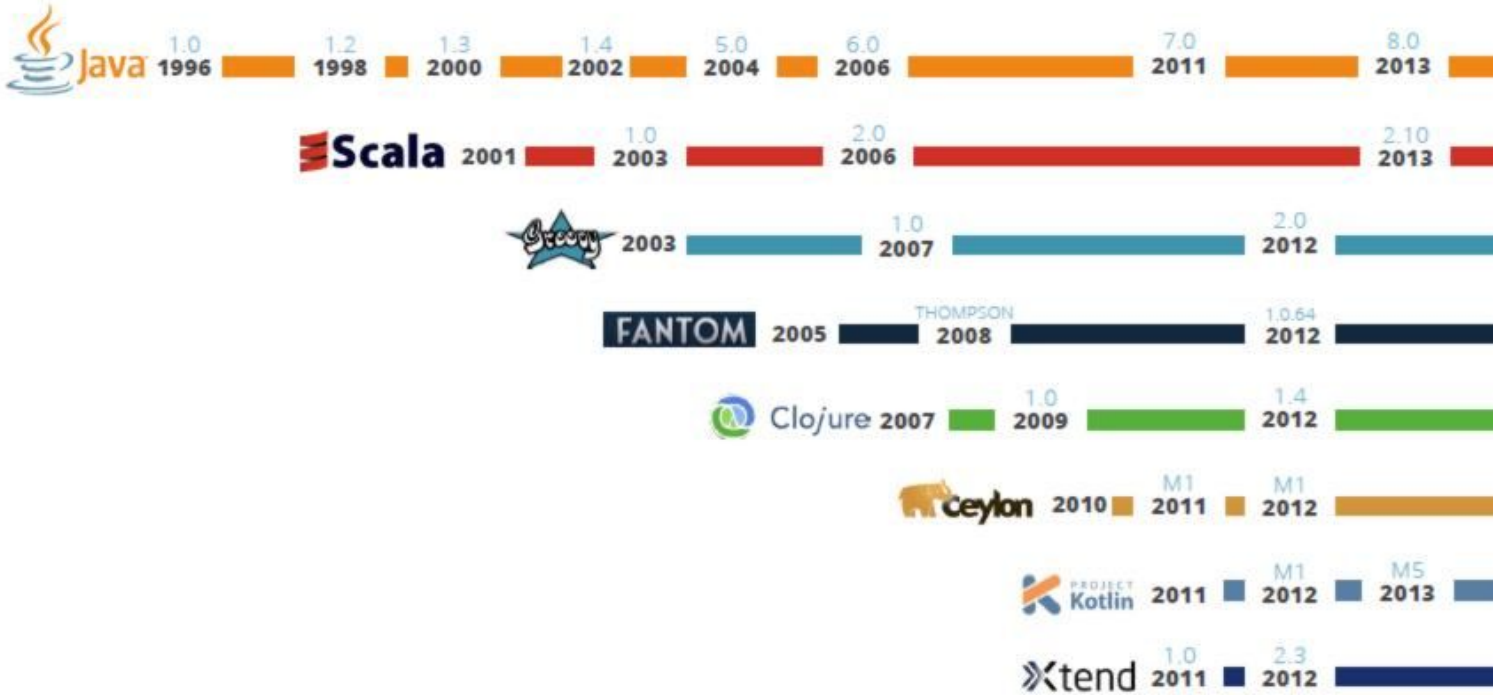
Scala popularity



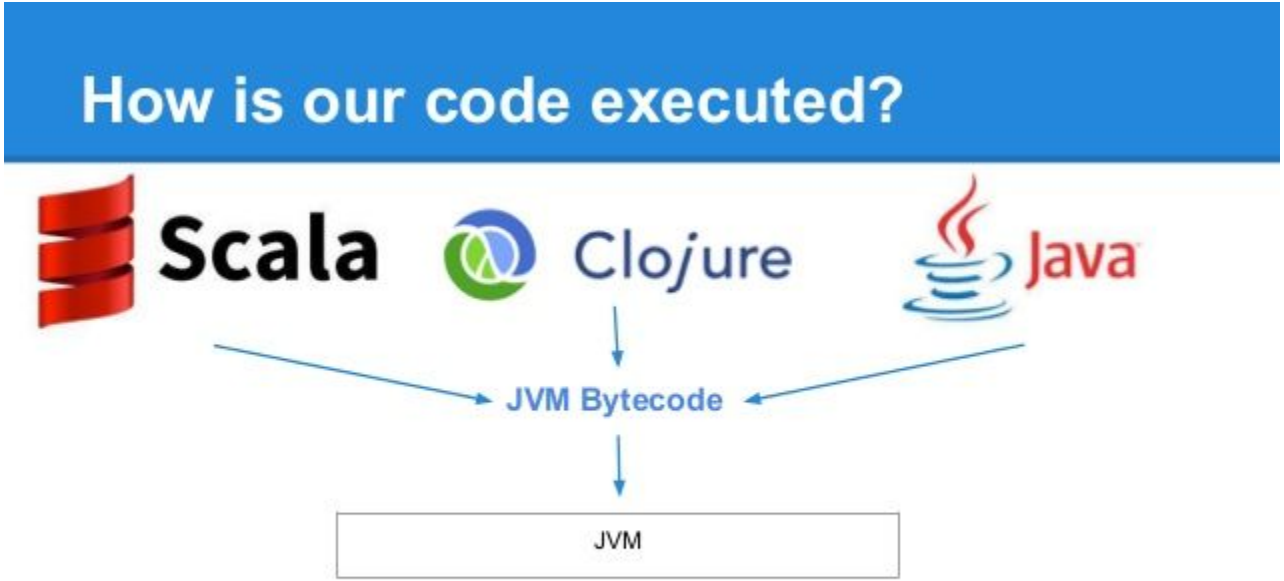
Scala popularity



Scala and JVM



Scala and JVM



Goals

- Imperative Programming
- Functional Programming
- Object-Oriented Programming
- Create your own project

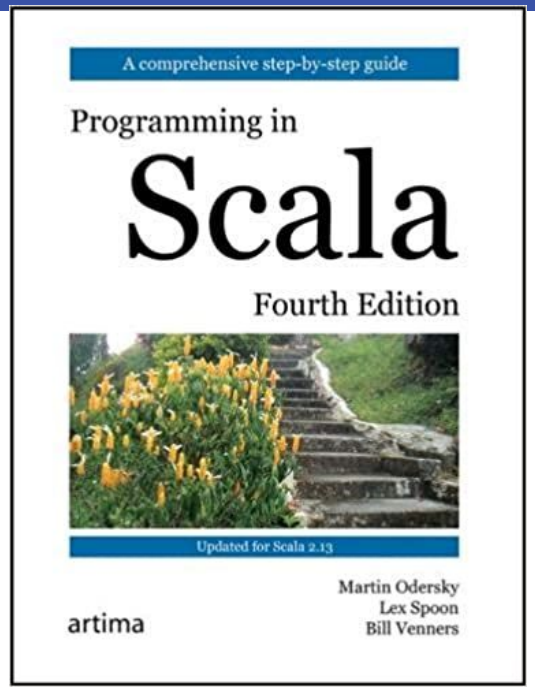
Course Materials

Main course page

https://github.com/ValRCS/Scala_2021_Aug

Google Classroom (will invite)

Books



- Scala Resources
- https://alvinalexander.com/scala/ - Author of Scala Cookbook
- https://www.lihaoyi.com/ - Author of Hands On Scala
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Requirements

- **Open / Analytical / Logical Mind**

- Helpful but NOT required knowledge:
- Comfortable in command line - will handle this
- SQL - during the course
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- Helpful: a computer with a minimum of 8GB RAM
- https://www.scala-lang.org/download/

PALDIES!
Thank You :)

Name
Road here
Experience
Goals