



Code Retreat @ Outbrain

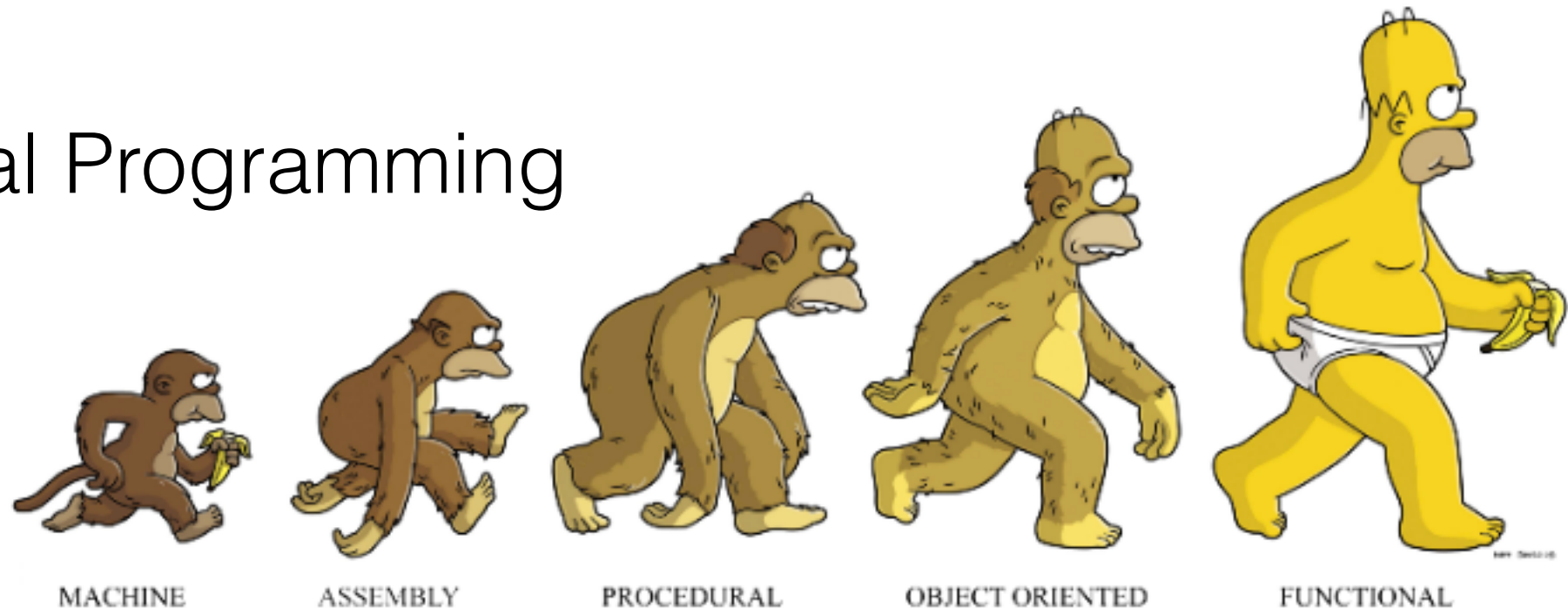
Functional-Programming

CR @ OB

- 1 hour session every 2 weeks
- code-retreat@outbrain.com mailing
- hip chat room code-retreat
- What do I get for X ?
 - Have Fun!
 - Improve your coding skills
 - Learn from others
 - Share with others
 - Play with new stuff

Today

- Conway's Game Of Life
- Functional Programming



Functional Programming

Functional programming is a programming paradigm that treats computation as the evaluation of mathematical **functions** and **avoids changing-state and mutable data.**

Functional Programming

- The output value of a function depends only on the input
 - So calling a function twice will produce the same result each time
- All data is immutable
- Functions do not have side-effects

Alternatives

- Java
- Javaslang
- Scala
- Kotlin
- Javascript

Problem to solve:

Conway's Game of Life

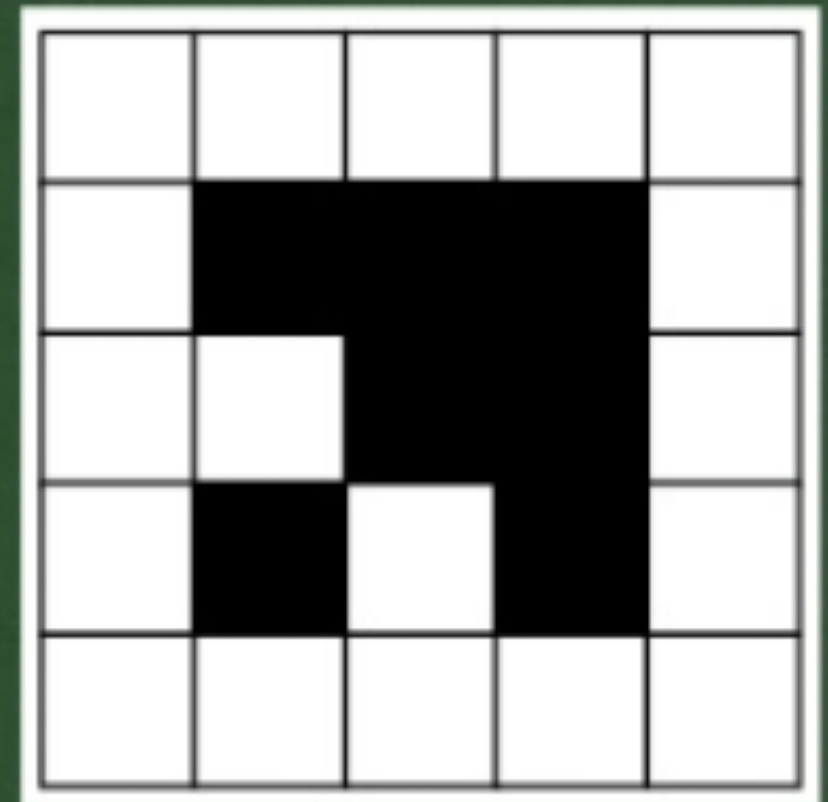
Zero-player game

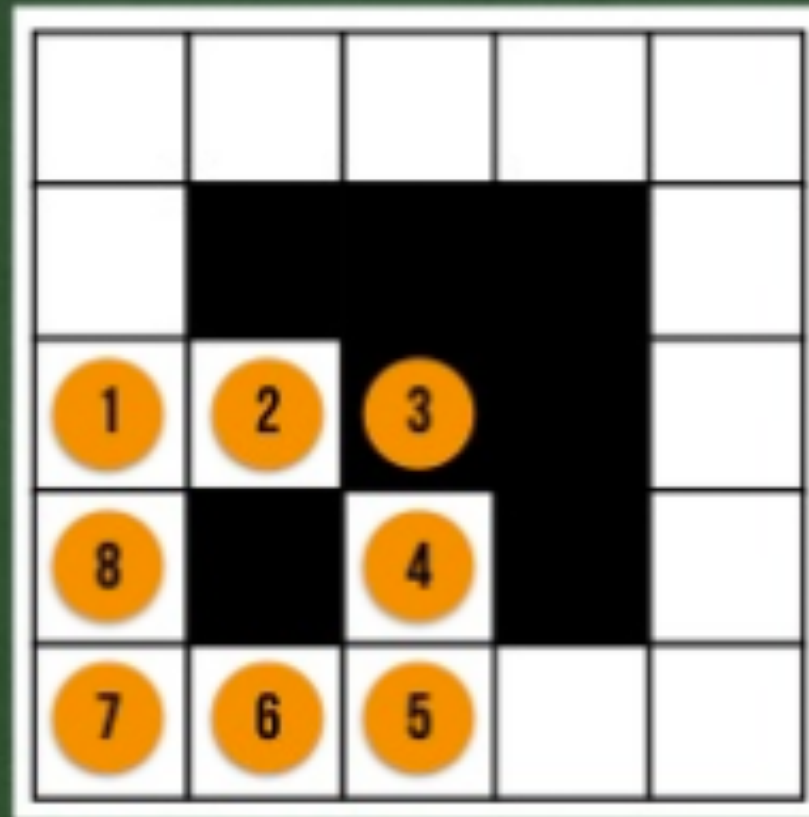
Cellular automation system

Devised by John Horton Conway

Evolution is determined by initial state

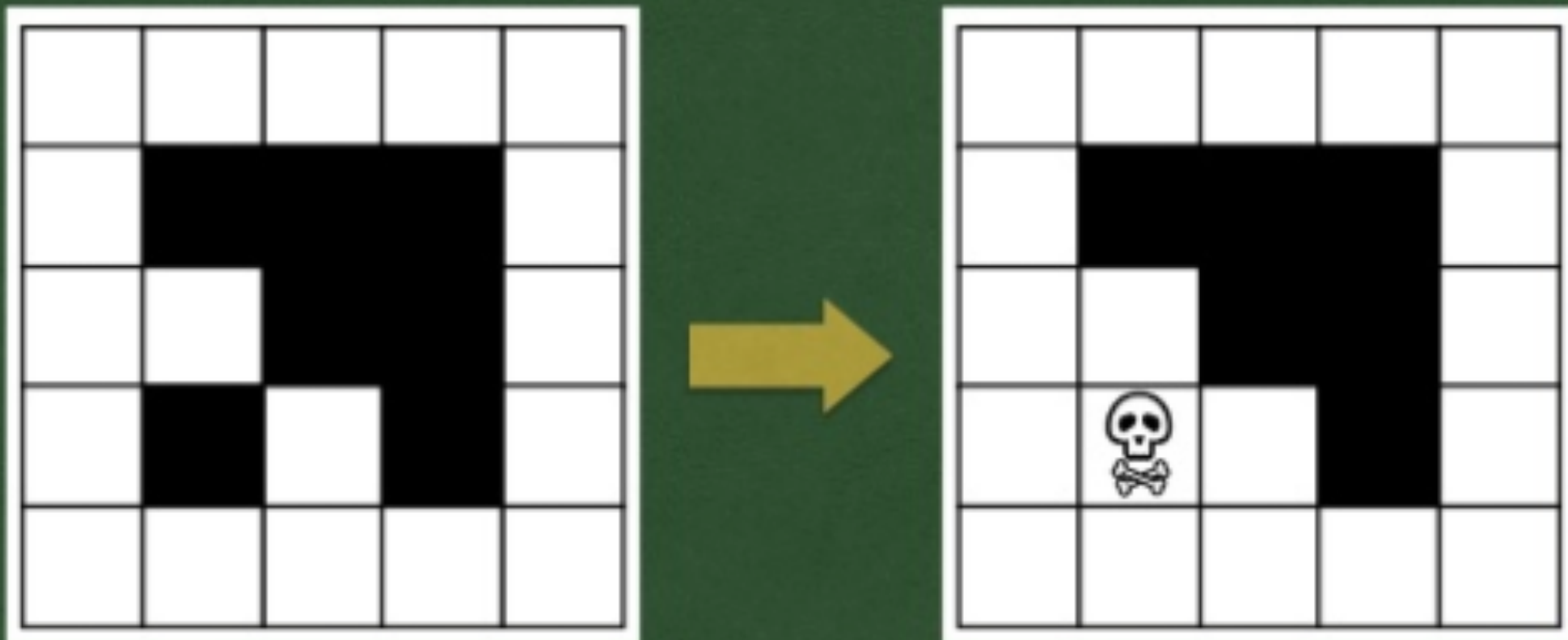
Each cell can be alive or dead





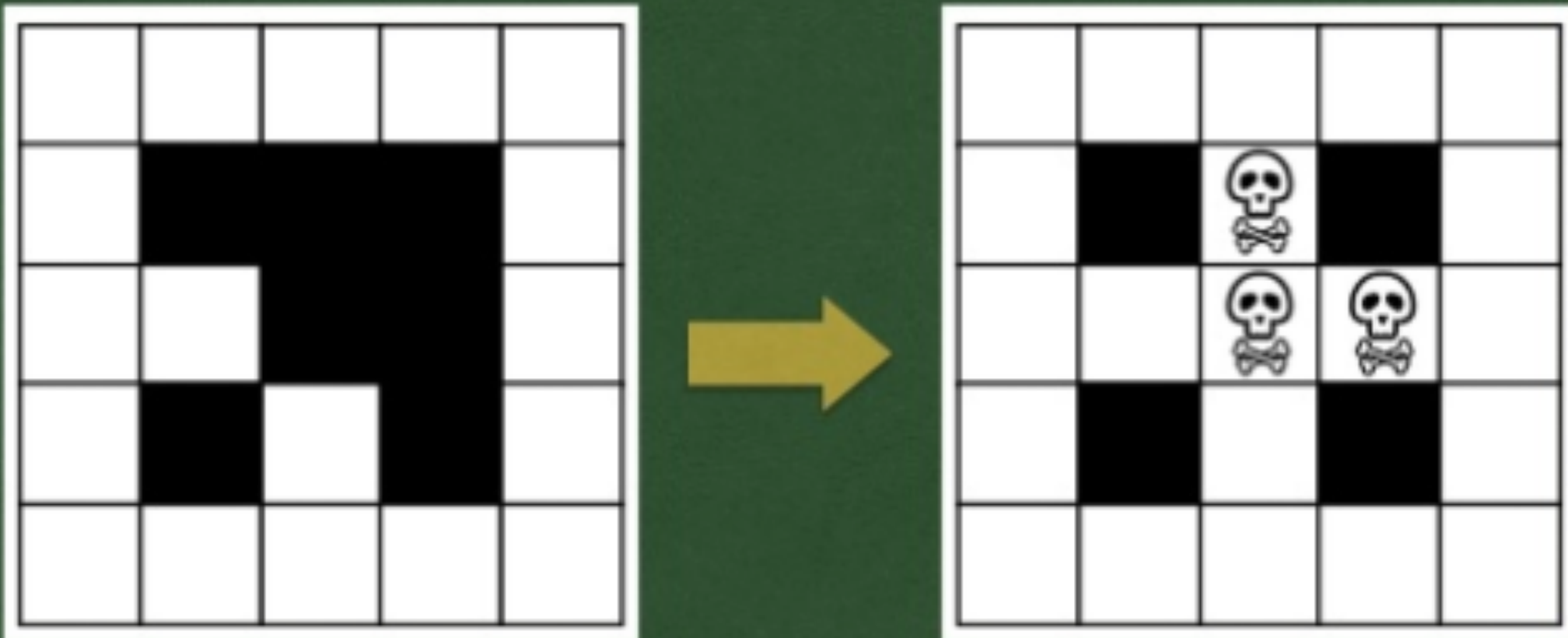
Each cell has 8 neighbours
and follows 3 rules

Rule 1



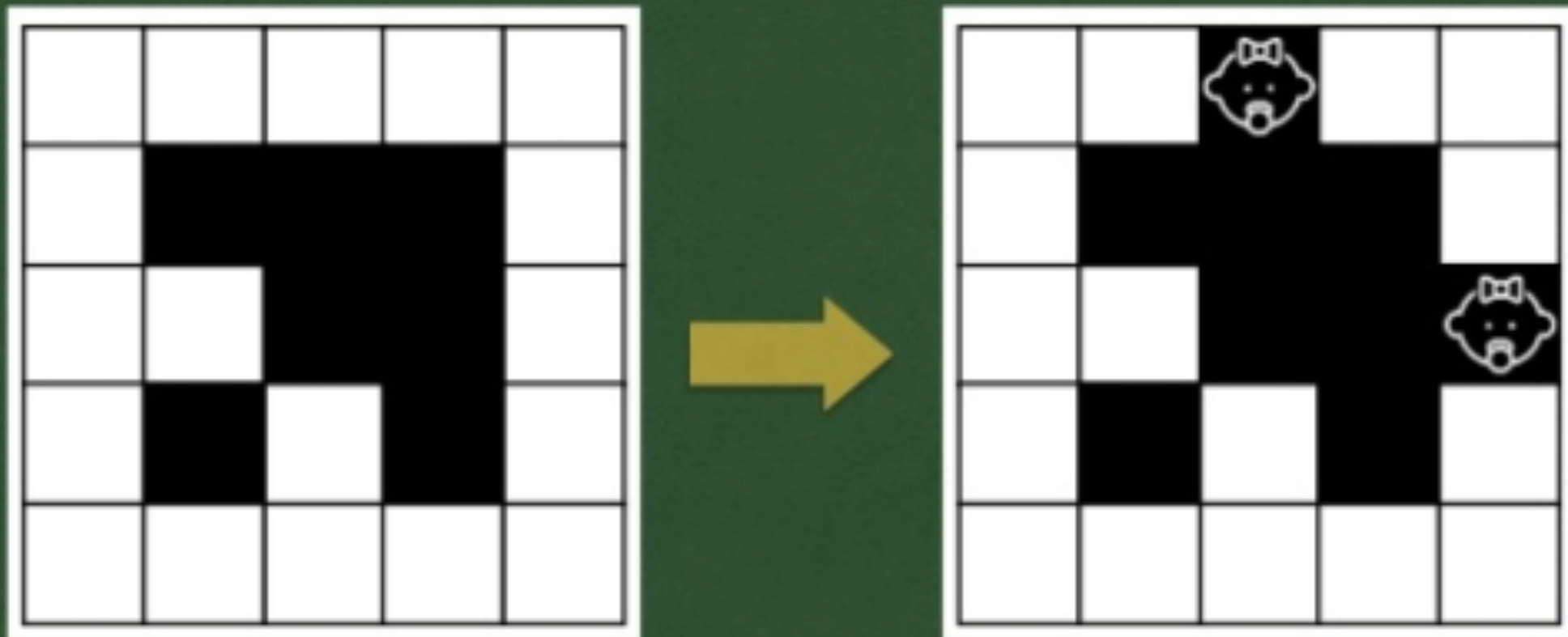
Any live cell with **fewer than 2** live neighbours
dies of loneliness

Rule 2



Any live cell with **more than 3** live neighbours
dies of overcrowding

Rule 3



Any dead cell with **exactly 3** live neighbours
comes to life of warmth

Enjoy!

All data is (effectively) immutable

Links

- <https://github.com/oshai/game-of-life>
- https://en.wikipedia.org/wiki/Conway%27s_Game_of_Life
- <http://www.slideshare.net/lemiorhan/coderetreat-practice-to-master-your-crafts>
- <https://medium.com/@cscalfani/so-you-want-to-be-a-functional-programmer-part-1-1f15e387e536#.3r3n0zl5d>