Three Goals

1. Get familiar with typed FP building blocks

Pure function, Recursion, Lazyness

Side effects, IO

Option, Either

Algebraic Data Type (ADT), Parametricity

2. Develop your FP intuition

How do you reverse a String?

```scala
def reverseString(x: String): String = {
  val charArray   = x.toCharArray
  val lastIndex   = x.length - 1
  val middleIndex = x.length / 2

  for (i <- 0 until middleIndex) {
    val tmp = charArray(i)
    charArray(i) = charArray(lastIndex - i)
    charArray(lastIndex - i) = tmp
  }

  String.valueOf(charArray)
}
```

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```

```scala
def reverseString(x: String): String =
  x.foldLeft("")(
    (accumulator: String, currentChar: Char) =>
      accumulator + currentChar
  )
```

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```

```scala
def reverseString(x: String): String =
  x.foldLeft("")(_ + _)
```

3. Why FP matters to you, your colleagues and your business

Out of scope

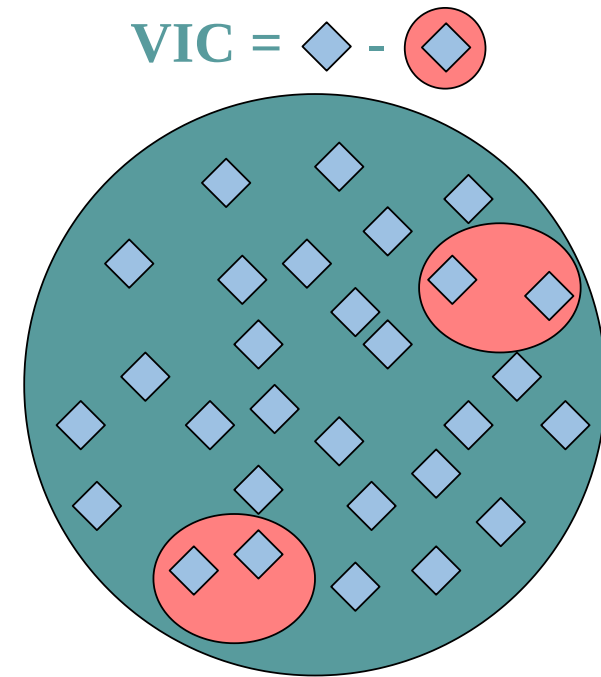How to build a complete FP application

Library specific API

Scala/JVM low level optimisations

Course main features

Original diagrams

Applicative

$$VIC = \diamond - \diamond$$

Course main features

Original diagrams

Lots of exercises (200+) with tests and answers

```
[info] - Id.Traverse.identity
[info] - Id.Traverse.map coherence
[info] - Const.Traverse.compose
[info] - Const.Traverse.foldMap coherence
[info] - Const.Traverse.identity
[info] - Const.Traverse.map coherence
[info] - foldLeft same as List
[info] - traverse_
[info] - foldMapM
[info] - parseNumber
[info] - checkAllUsersAdult
[info] ScalaTest
[info] Run completed in 2 seconds, 312 milliseconds.
[info] Total number of tests run: 313
[info] Suites: completed 8, aborted 0
[info] Tests: succeeded 313, failed 0, canceled 0, ignored 0, pending 0
[info] All tests passed.
[info] Passed: Total 313, Failed 0, Errors 0, Passed 313
[success] Total time: 3 s, completed 14-Jun-2019 14:05:32
sbt:fp-foundation> █
```

Course main features

Original diagrams

Lots of exercises (200+) with tests and answers

Online community ready to answer your questions

`chat on gitter`

Contact

Twitter: https://twitter.com/TheFpTower

Chat: https://gitter.im/fp-tower/foundation

Sponsoring: https://www.patreon.com/julien_truffaut

Email: info@fp-tower.com

Module 1: Function