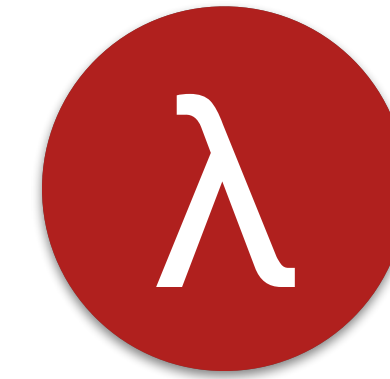


So far in the Scala courses...



Focused on:

- ▶ **Basics of Functional Programming.** Slowly building up on fundamentals.
- ▶ **Parallelism.** Experience with underlying execution in shared memory parallelism.



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This course:

Not a machine learning or data science course!

- ▶ This is a course about distributed data parallelism in Spark.
- ▶ Extending familiar functional abstractions like functional lists over large clusters.
- ▶ Context: analyzing large data sets.

# Why Scala? Why Spark?

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**Oh yeah, there's also the massive shift in industry to data-oriented decision making too!**

...and many applications are “data science in the large”.

# Why Scala? Why Spark?

**By using a language like Scala, it's easier to scale your small problem to the large with Spark, whose API is almost 1-to-1 with Scala's collections.**

That is, by working in Scala, in a functional style, you can quickly scale your problem from one node to tens, hundreds, or even thousands by leveraging Spark, successful and performant large-scale data processing framework which looks a and feels a lot like Scala Collections!



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- ▶ **Performant.** Not only performant in terms of running time... But also in terms of developer productivity! Interactive!
- ▶ **Good for data science.** Not just because of performance, but because it enables *iteration*, which is required by most algorithms in a data scientist's toolbox.



Also good to know...

**Spark and Scala skills are in extremely high demand!**

## In this course you'll learn...

- ▶ **Extending data parallel paradigm to the distributed case, using Spark.**
- ▶ **Spark's programming model**
- ▶ **Distributing computation, and cluster topology in Spark**
- ▶ **How to improve performance; data locality, how to avoid recomputation and shuffles in Spark.**
- ▶ **Relational operations with DataFrames and Datasets**

# Prerequisites

**Builds on the material taught in the previous Scala courses.**

- ▶ **Principles of Functional Programming in Scala.**
- ▶ **Functional Program Design in Scala**
- ▶ **Parallel Programming (in Scala)**

Or at minimum, some familiarity with Scala.



# Books, Resources

Many excellent books released in the past year or two!



**Learning Spark** (2015), written by Holden Karau, Andy Konwinski, Patrick Wendell, and Matei Zaharia



# Books, Resources

Many excellent books released in the past year or two!



**Spark in Action** (2017), written by Petar Zecevic and Marko Bonaci



# Books, Resources

Many excellent books released in the past year or two!



**High Performance Spark** (in progress), written by Holden Karau and Rachel Warren



# Books, Resources

Many excellent books released in the past year or two!



**Advanced Analytics with Spark (2015), written by Sandy Ryza, Uri Laserson, Sean Owen, and Josh Wills**



# Books, Resources



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## Mastering Apache Spark 2

Welcome to Mastering Apache Spark 2 (aka #SparkLikePro)!

I'm [Jacek Laskowski](#), an **independent consultant** who is passionate about **Apache Spark**, Apache Kafka, Scala, sbt (with some flavour of Apache Mesos, Hadoop YARN, and DC/OS). I lead [Warsaw Scala Enthusiasts](#) and [Warsaw Spark](#) meetups in Warsaw, Poland.

# Tools

**As in all other Scala courses...**

- ▶ IDE of your choice
- ▶ sbt
- ▶ Databricks Community Edition (*optional*)

Free hosted in-browser Spark notebook. Spark “cluster” managed by Databricks so you don’t have to worry about it. 6GB of memory for you to experiment with.

# Assignments

**Like all other Scala courses, this course comes with autograders!**

**Course features 3 auto-graded assignments that require you to do analyses on real-life datasets.**

# Let's jump in!

