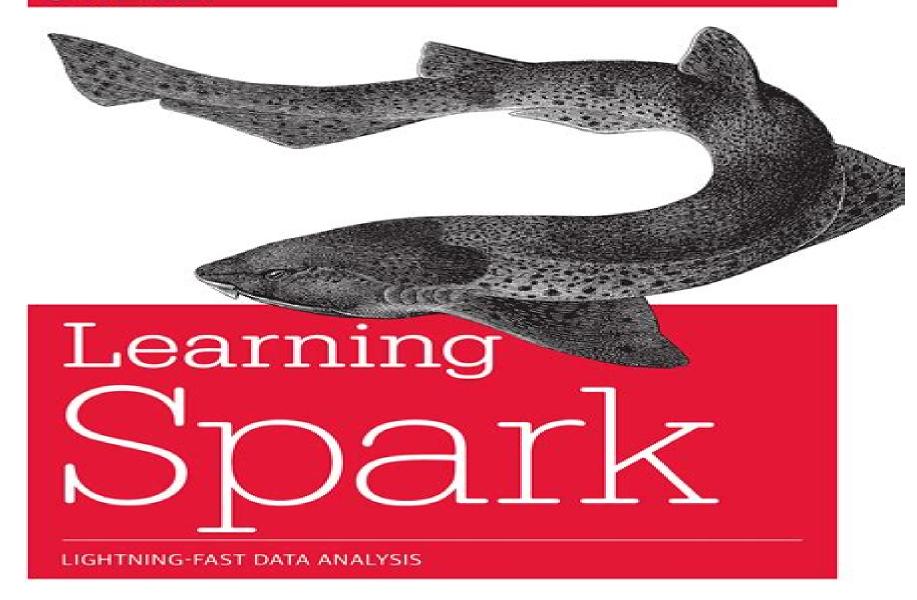# Learning Spark

LIGHTNING-FAST DATA ANALYSIS

Holden Karau, Andy Konwinski,
Patrick Wendell & Matei Zaharia

Learning Spark Lightning Fast Big Data Analysis Andy Konwinski

Jawwad Ahmad Shamsi

Learning Spark Lightning Fast Big Data Analysis Andy Konwinski:

Learning Spark Holden Karau,Andy Konwinski,Patrick Wendell,Matei Zaharia,2015-01-28 Data in all domains is getting bigger How can you work with it efficiently Recently updated for Spark 1 3 this book introduces Apache Spark the open source cluster computing system that makes data analytics fast to write and fast to run With Spark you can tackle big datasets quickly through simple APIs in Python Java and Scala This edition includes new information on Spark SQL Spark Streaming setup and Maven coordinates Written by the developers of Spark this book will have data scientists and engineers up and running in no time You ll learn how to express parallel jobs with just a few lines of code and cover applications from simple batch jobs to stream processing and machine learning Quickly dive into Spark capabilities such as distributed datasets in memory caching and the interactive shell Leverage Spark s powerful built in libraries including Spark SQL Spark Streaming and MLlib Use one programming paradigm instead of mixing and matching tools like Hive Hadoop Mahout and Storm Learn how to deploy interactive batch and streaming applications Connect to data sources including HDFS Hive JSON and S3 Master advanced topics like data partitioning and shared variables   **Big Data Systems** Jawwad Ahmad Shamsi,2021-05-11 Big Data Systems encompass massive challenges related to data diversity storage mechanisms and requirements of massive computational power Further capabilities of big data systems also vary with respect to type of problems For instance distributed memory systems are not recommended for iterative algorithms Similarly variations in big data systems also exist related to consistency and fault tolerance The purpose of this book is to provide a detailed explanation of big data systems The book covers various topics including Networking Security Privacy Storage Computation Cloud Computing NoSQL and NewSQL systems High Performance Computing and Deep Learning An illustrative and practical approach has been adopted in which theoretical topics have been aided by well explained programming and illustrative examples Key Features Introduces concepts and evolution of Big Data technology Illustrates examples for thorough understanding Contains programming examples for hands on development Explains a variety of topics including NoSQL Systems NewSQL systems Security Privacy Networking Cloud High Performance Computing and Deep Learning Exemplifies widely used big data technologies such as Hadoop and Spark Includes discussion on case studies and open issues Provides end of chapter questions for enhanced learning   *Practical Machine Learning on Databricks* Debu Sinha,2023-11-24 Take your machine learning skills to the next level by mastering databricks and building robust ML pipeline solutions for future ML innovations Key Features Learn to build robust ML pipeline solutions for databricks transition Master commonly available features like AutoML and MLflow Leverage data governance and model deployment using MLflow model registry Purchase of the print or Kindle book includes a free PDF eBook Book DescriptionUnleash the potential of databricks for end to end machine learning with this comprehensive guide tailored for experienced data scientists and developers transitioning from DIY or other cloud platforms Building on a strong foundation in Python Practical

Machine Learning on Databricks serves as your roadmap from development to production covering all intermediary steps using the databricks platform You ll start with an overview of machine learning applications databricks platform features and MLflow Next you ll dive into data preparation model selection and training essentials and discover the power of databricks feature store for precomputing feature tables You ll also learn to kickstart your projects using databricks AutoML and automate retraining and deployment through databricks workflows By the end of this book you ll have mastered MLflow for experiment tracking collaboration and advanced use cases like model interpretability and governance The book is enriched with hands on example code at every step While primarily focused on generally available features the book equips you to easily adapt to future innovations in machine learning databricks and MLflow What you will learn Transition smoothly from DIY setups to databricks Master AutoML for quick ML experiment setup Automate model retraining and deployment Leverage databricks feature store for data prep Use MLflow for effective experiment tracking Gain practical insights for scalable ML solutions Find out how to handle model drifts in production environments Who this book is forThis book is for experienced data scientists engineers and developers proficient in Python statistics and ML lifecycle looking to transition to databricks from DIY clouds Introductory Spark knowledge is a must to make the most out of this book however end to end ML workflows will be covered If you aim to accelerate your machine learning workflows and deploy scalable robust solutions this book is an indispensable resource   Multimedia Information Retrieval Eduardo Quevedo,2021-06-02 Due to increasing globalization and the explosion of media available on the Internet computer techniques to organize classify and find desired media are becoming more and more relevant One such technique to extract semantic information from multimedia data sources is Multimedia Information Retrieval MMIR or MIR MIR is a broad area covering both structural issues and intelligent content analysis and retrieval These aspects must be integrated into a seamless whole which involves expertise from a wide variety of fields This book presents recent applications of MIR for content based image retrieval bioinformation analysis and processing forensic multimedia retrieval techniques and audio and music classification   **Big data con python** Rafael Caballero Roldán,Enrique Martín Martín,Adrián Riesco Rodríguez,2019-10-30 Para lograr analizar datos y convertirlos en informaci n el primer paso es ser capaz de incorporarlos a nuestro programa esto es cargar los datos En este cap tulo discutimos la adquisici n de datos desde fichero por lo que en primer lugar es necesario plantearse una serie de preguntas qu son datos Su adquisici n se limita a descargar datos de internet Es capaz el lenguaje Python de entender cualquier fuente de informaci n tales como texto im genes audio y v deo Puedo obtener informaci n de cualquier fuente como p ginas oficiales del gobierno peri dicos redes sociales y foros de opini n Aunque en general entendemos por datos cualquier tipo de informaci n que se almacena en un ordenador en el contexto de este libro usaremos datos para referirnos a colecciones de elementos con una serie de atributos   **Learning Spark** Jules S. Damji,Brooke Wenig,Tathagata Das,Denny Lee,2020-07-16 Data is bigger arrives faster and comes in a variety of formats and it all needs to be processed at scale for analytics or machine learning But

how can you process such varied workloads efficiently Enter Apache Spark Updated to include Spark 3 0 this second edition shows data engineers and data scientists why structure and unification in Spark matters Specifically this book explains how to perform simple and complex data analytics and employ machine learning algorithms Through step by step walk throughs code snippets and notebooks you ll be able to Learn Python SQL Scala or Java high level Structured APIs Understand Spark operations and SQL Engine Inspect tune and debug Spark operations with Spark configurations and Spark UI Connect to data sources JSON Parquet CSV Avro ORC Hive S3 or Kafka Perform analytics on batch and streaming data using Structured Streaming Build reliable data pipelines with open source Delta Lake and Spark Develop machine learning pipelines with MLlib and productionize models using MLflow *Learning Spark* Holden Karau,2015 *Big Data Analytics with Spark* Mohammed Guller,2015-12-29 Big Data Analytics with Spark is a step by step guide for learning Spark which is an open source fast and general purpose cluster computing framework for large scale data analysis You will learn how to use Spark for different types of big data analytics projects including batch interactive graph and stream data analysis as well as machine learning In addition this book will help you become a much sought after Spark expert Spark is one of the hottest Big Data technologies The amount of data generated today by devices applications and users is exploding Therefore there is a critical need for tools that can analyze large scale data and unlock value from it Spark is a powerful technology that meets that need You can for example use Spark to perform low latency computations through the use of efficient caching and iterative algorithms leverage the features of its shell for easy and interactive Data analysis employ its fast batch processing and low latency features to process your real time data streams and so on As a result adoption of Spark is rapidly growing and is replacing Hadoop MapReduce as the technology of choice for big data analytics This book provides an introduction to Spark and related big data technologies It covers Spark core and its add on libraries including Spark SQL Spark Streaming GraphX and MLlib Big Data Analytics with Spark is therefore written for busy professionals who prefer learning a new technology from a consolidated source instead of spending countless hours on the Internet trying to pick bits and pieces from different sources The book also provides a chapter on Scala the hottest functional programming language and the program that underlies Spark You ll learn the basics of functional programming in Scala so that you can write Spark applications in it What s more Big Data Analytics with Spark provides an introduction to other big data technologies thatare commonly used along with Spark like Hive Avro Kafka and so on So the book is self sufficient all the technologies that you need to know to use Spark are covered The only thing that you are expected to know is programming in any language There is a critical shortage of people with big data expertise so companies are willing to pay top dollar for people with skills in areas like Spark and Scala So reading this book and absorbing its principles will provide a boost possibly a big boost to your career *Spark: The Definitive Guide* Bill Chambers,Matei Zaharia,2018-02-08 Learn how to use deploy and maintain Apache Spark with this comprehensive guide written by the creators of the open source cluster computing framework With an emphasis on

improvements and new features in Spark 2 0 authors Bill Chambers and Matei Zaharia break down Spark topics into distinct sections each with unique goals You ll explore the basic operations and common functions of Spark s structured APIs as well as Structured Streaming a new high level API for building end to end streaming applications Developers and system administrators will learn the fundamentals of monitoring tuning and debugging Spark and explore machine learning techniques and scenarios for employing MLlib Spark s scalable machine learning library Get a gentle overview of big data and Spark Learn about DataFrames SQL and Datasets Spark s core APIs through worked examples Dive into Spark s low level APIs RDDs and execution of SQL and DataFrames Understand how Spark runs on a cluster Debug monitor and tune Spark clusters and applications Learn the power of Structured Streaming Spark s stream processing engine Learn how you can apply MLlib to a variety of problems including classification or recommendation   Scala and Spark for Big Data Analytics Md. Rezaul Karim,Sridhar Alla,2017-07-25 Harness the power of Scala to program Spark and analyze tonnes of data in the blink of an eye About This Book Learn Scala s sophisticated type system that combines Functional Programming and object oriented concepts Work on a wide array of applications from simple batch jobs to stream processing and machine learning Explore the most common as well as some complex use cases to perform large scale data analysis with Spark Who This Book Is For Anyone who wishes to learn how to perform data analysis by harnessing the power of Spark will find this book extremely useful No knowledge of Spark or Scala is assumed although prior programming experience especially with other JVM languages will be useful to pick up concepts quicker What You Will Learn Understand object oriented functional programming concepts of Scala In depth understanding of Scala collection APIs Work with RDD and DataFrame to learn Spark s core abstractions Analysing structured and unstructured data using SparkSQL and GraphX Scalable and fault tolerant streaming application development using Spark structured streaming Learn machine learning best practices for classification regression dimensionality reduction and recommendation system to build predictive models with widely used algorithms in Spark MLlib ML Build clustering models to cluster a vast amount of data Understand tuning debugging and monitoring Spark applications Deploy Spark applications on real clusters in Standalone Mesos and YARN In Detail Scala has been observing wide adoption over the past few years especially in the field of data science and analytics Spark built on Scala has gained a lot of recognition and is being used widely in productions Thus if you want to leverage the power of Scala and Spark to make sense of big data this book is for you The first part introduces you to Scala helping you understand the object oriented and functional programming concepts needed for Spark application development It then moves on to Spark to cover the basic abstractions using RDD and DataFrame This will help you develop scalable and fault tolerant streaming applications by analyzing structured and unstructured data using SparkSQL GraphX and Spark structured streaming Finally the book moves on to some advanced topics such as monitoring configuration debugging testing and deployment You will also learn how to develop Spark applications using SparkR and PySpark APIs interactive data analytics using Zeppelin and in

memory data processing with Alluxio By the end of this book you will have a thorough understanding of Spark and you will be able to perform full stack data analytics with a feel that no amount of data is too big Style and approach Filled with practical examples and use cases this book will hot only help you get up and running with Spark but will also take you farther down the road to becoming a data scientist **Apache Spark for Data Science Cookbook** Padma Priya Chitturi,2016-12-22 Over insightful 90 recipes to get lightning fast analytics with Apache Spark About This Book Use Apache Spark for data processing with these hands on recipes Implement end to end large scale data analysis better than ever before Work with powerful libraries such as MLLib SciPy NumPy and Pandas to gain insights from your data Who This Book Is For This book is for novice and intermediate level data science professionals and data analysts who want to solve data science problems with a distributed computing framework Basic experience with data science implementation tasks is expected Data science professionals looking to skill up and gain an edge in the field will find this book helpful What You Will Learn Explore the topics of data mining text mining Natural Language Processing information retrieval and machine learning Solve real world analytical problems with large data sets Address data science challenges with analytical tools on a distributed system like Spark apt for iterative algorithms which offers in memory processing and more flexibility for data analysis at scale Get hands on experience with algorithms like Classification regression and recommendation on real datasets using Spark MLLib package Learn about numerical and scientific computing using NumPy and SciPy on Spark Use Predictive Model Markup Language PMML in Spark for statistical data mining models In Detail Spark has emerged as the most promising big data analytics engine for data science professionals The true power and value of Apache Spark lies in its ability to execute data science tasks with speed and accuracy Spark s selling point is that it combines ETL batch analytics real time stream analysis machine learning graph processing and visualizations It lets you tackle the complexities that come with raw unstructured data sets with ease This guide will get you comfortable and confident performing data science tasks with Spark You will learn about implementations including distributed deep learning numerical computing and scalable machine learning You will be shown effective solutions to problematic concepts in data science using Spark s data science libraries such as MLLib Pandas NumPy SciPy and more These simple and efficient recipes will show you how to implement algorithms and optimize your work Style and approach This book contains a comprehensive range of recipes designed to help you learn the fundamentals and tackle the difficulties of data science This book outlines practical steps to produce powerful insights into Big Data through a recipe based approach Data Analytics with Spark Using Python Jeffrey Aven,2018-06-18 Solve Data Analytics Problems with Spark PySpark and Related Open Source Tools Spark is at the heart of today s Big Data revolution helping data professionals supercharge efficiency and performance in a wide range of data processing and analytics tasks In this guide Big Data expert Jeffrey Aven covers all you need to know to leverage Spark together with its extensions subprojects and wider ecosystem Aven combines a language agnostic introduction to foundational Spark concepts with extensive

programming examples utilizing the popular and intuitive PySpark development environment This guide s focus on Python makes it widely accessible to large audiences of data professionals analysts and developers even those with little Hadoop or Spark experience Aven s broad coverage ranges from basic to advanced Spark programming and Spark SQL to machine learning You ll learn how to efficiently manage all forms of data with Spark streaming structured semi structured and unstructured Throughout concise topic overviews quickly get you up to speed and extensive hands on exercises prepare you to solve real problems Coverage includes Understand Spark s evolving role in the Big Data and Hadoop ecosystems Create Spark clusters using various deployment modes Control and optimize the operation of Spark clusters and applications Master Spark Core RDD API programming techniques Extend accelerate and optimize Spark routines with advanced API platform constructs including shared variables RDD storage and partitioning Efficiently integrate Spark with both SQL and nonrelational data stores Perform stream processing and messaging with Spark Streaming and Apache Kafka Implement predictive modeling with SparkR and Spark MLlib   Practical Big Data Analytics Nataraj Dasgupta,2018-01-15 Get command of your organizational Big Data using the power of data science and analytics Key Features A perfect companion to boost your Big Data storing processing analyzing skills to help you take informed business decisions Work with the best tools such as Apache Hadoop R Python and Spark for NoSQL platforms to perform massive online analyses Get expert tips on statistical inference machine learning mathematical modeling and data visualization for Big Data Book Description Big Data analytics relates to the strategies used by organizations to collect organize and analyze large amounts of data to uncover valuable business insights that otherwise cannot be analyzed through traditional systems Crafting an enterprise scale cost efficient Big Data and machine learning solution to uncover insights and value from your organization s data is a challenge Today with hundreds of new Big Data systems machine learning packages and BI Tools selecting the right combination of technologies is an even greater challenge This book will help you do that With the help of this guide you will be able to bridge the gap between the theoretical world of technology with the practical ground reality of building corporate Big Data and data science platforms You will get hands on exposure to Hadoop and Spark build machine learning dashboards using R and R Shiny create web based apps using NoSQL databases such as MongoDB and even learn how to write R code for neural networks By the end of the book you will have a very clear and concrete understanding of what Big Data analytics means how it drives revenues for organizations and how you can develop your own Big Data analytics solution using different tools and methods articulated in this book What you will learn Get a 360 degree view into the world of Big Data data science and machine learning Broad range of technical and business Big Data analytics topics that caters to the interests of the technical experts as well as corporate IT executives Get hands on experience with industry standard Big Data and machine learning tools such as Hadoop Spark MongoDB KDB and R Create production grade machine learning BI Dashboards using R and R Shiny with step by step instructions Learn how to combine open source Big Data machine learning and BI Tools to create low

cost business analytics applications Understand corporate strategies for successful Big Data and data science projects Go beyond general purpose analytics to develop cutting edge Big Data applications using emerging technologies Who this book is for The book is intended for existing and aspiring Big Data professionals who wish to become the go to person in their organization when it comes to Big Data architecture analytics and governance While no prior knowledge of Big Data or related technologies is assumed it will be helpful to have some programming experience **Advanced Analytics with Spark** Sandy Ryza,Uri Laserson,Sean Owen,Josh Wills,2017-06-12 In the second edition of this practical book four Cloudera data scientists present a set of self contained patterns for performing large scale data analysis with Spark The authors bring Spark statistical methods and real world data sets together to teach you how to approach analytics problems by example Updated for Spark 2 1 this edition acts as an introduction to these techniques and other best practices in Spark programming You ll start with an introduction to Spark and its ecosystem and then dive into patterns that apply common techniques including classification clustering collaborative filtering and anomaly detection to fields such as genomics security and finance If you have an entry level understanding of machine learning and statistics and you program in Java Python or Scala you ll find the book s patterns useful for working on your own data applications With this book you will Familiarize yourself with the Spark programming model Become comfortable within the Spark ecosystem Learn general approaches in data science Examine complete implementations that analyze large public data sets Discover which machine learning tools make sense for particular problems Acquire code that can be adapted to many uses **Big Data Processing with Apache Spark** Manuel Ignacio Franco Galeano,2018-10-31 No need to spend hours ploughing through endless data let Spark one of the fastest big data processing engines available do the hard work for you Key Features Get up and running with Apache Spark and Python Integrate Spark with AWS for real time analytics Apply processed data streams to machine learning APIs of Apache Spark Book Description Processing big data in real time is challenging due to scalability information consistency and fault tolerance This book teaches you how to use Spark to make your overall analytical workflow faster and more efficient You ll explore all core concepts and tools within the Spark ecosystem such as Spark Streaming the Spark Streaming API machine learning extension and structured streaming You ll begin by learning data processing fundamentals using Resilient Distributed Datasets RDDs SQL Datasets and Dataframes APIs After grasping these fundamentals you ll move on to using Spark Streaming APIs to consume data in real time from TCP sockets and integrate Amazon Web Services AWS for stream consumption By the end of this book you ll not only have understood how to use machine learning extensions and structured streams but you ll also be able to apply Spark in your own upcoming big data projects What you will learn Write your own Python programs that can interact with Spark Implement data stream consumption using Apache Spark Recognize common operations in Spark to process known data streams Integrate Spark streaming with Amazon Web Services AWS Create a collaborative filtering model with the movielens dataset Apply processed data streams to Spark machine learning APIs Who

this book is for Data Processing with Apache Spark is for you if you are a software engineer architect or IT professional who wants to explore distributed systems and big data analytics Although you don t need any knowledge of Spark prior experience of working with Python is recommended **Data Analysis with Python and PySpark** Jonathan Rioux,2022-04-12 Think big about your data PySpark brings the powerful Spark big data processing engine to the Python ecosystem letting you seamlessly scale up your data tasks and create lightning fast pipelines In Data Analysis with Python and PySpark you will learn how to Manage your data as it scales across multiple machines Scale up your data programs with full confidence Read and write data to and from a variety of sources and formats Deal with messy data with PySpark s data manipulation functionality Discover new data sets and perform exploratory data analysis Build automated data pipelines that transform summarize and get insights from data Troubleshoot common PySpark errors Creating reliable long running jobs Data Analysis with Python and PySpark is your guide to delivering successful Python driven data projects Packed with relevant examples and essential techniques this practical book teaches you to build pipelines for reporting machine learning and other data centric tasks Quick exercises in every chapter help you practice what you ve learned and rapidly start implementing PySpark into your data systems No previous knowledge of Spark is required About the technology The Spark data processing engine is an amazing analytics factory raw data comes in insight comes out PySpark wraps Spark s core engine with a Python based API It helps simplify Spark s steep learning curve and makes this powerful tool available to anyone working in the Python data ecosystem About the book Data Analysis with Python and PySpark helps you solve the daily challenges of data science with PySpark You ll learn how to scale your processing capabilities across multiple machines while ingesting data from any source whether that s Hadoop clusters cloud data storage or local data files Once you ve covered the fundamentals you ll explore the full versatility of PySpark by building machine learning pipelines and blending Python pandas and PySpark code What s inside Organizing your PySpark code Managing your data no matter the size Scale up your data programs with full confidence Troubleshooting common data pipeline problems Creating reliable long running jobs About the reader Written for data scientists and data engineers comfortable with Python About the author As a ML director for a data driven software company Jonathan Rioux uses PySpark daily He teaches the software to data scientists engineers and data savvy business analysts Table of Contents 1 Introduction PART 1 GET ACQUAINTED FIRST STEPS IN PYSPARK 2 Your first data program in PySpark 3 Submitting and scaling your first PySpark program 4 Analyzing tabular data with pyspark sql 5 Data frame gymnastics Joining and grouping PART 2 GET PROFICIENT TRANSLATE YOUR IDEAS INTO CODE 6 Multidimensional data frames Using PySpark with JSON data 7 Bilingual PySpark Blending Python and SQL code 8 Extending PySpark with Python RDD and UDFs 9 Big data is just a lot of small data Using pandas UDFs 10 Your data under a different lens Window functions 11 Faster PySpark Understanding Spark s query planning PART 3 GET CONFIDENT USING MACHINE LEARNING WITH PYSPARK 12 Setting the stage Preparing features for machine learning 13 Robust machine

learning with ML Pipelines 14 Building custom ML transformers and estimators *Learning PySpark* Tomasz Drabas,Denny Lee,2017-02-27 Build data intensive applications locally and deploy at scale using the combined powers of Python and Spark 2 0 About This Book Learn why and how you can efficiently use Python to process data and build machine learning models in Apache Spark 2 0 Develop and deploy efficient scalable real time Spark solutions Take your understanding of using Spark with Python to the next level with this jump start guide Who This Book Is For If you are a Python developer who wants to learn about the Apache Spark 2 0 ecosystem this book is for you A firm understanding of Python is expected to get the best out of the book Familiarity with Spark would be useful but is not mandatory What You Will Learn Learn about Apache Spark and the Spark 2 0 architecture Build and interact with Spark DataFrames using Spark SQL Learn how to solve graph and deep learning problems using GraphFrames and TensorFrames respectively Read transform and understand data and use it to train machine learning models Build machine learning models with MLlib and ML Learn how to submit your applications programmatically using spark submit Deploy locally built applications to a cluster In Detail Apache Spark is an open source framework for efficient cluster computing with a strong interface for data parallelism and fault tolerance This book will show you how to leverage the power of Python and put it to use in the Spark ecosystem You will start by getting a firm understanding of the Spark 2 0 architecture and how to set up a Python environment for Spark You will get familiar with the modules available in PySpark You will learn how to abstract data with RDDs and DataFrames and understand the streaming capabilities of PySpark Also you will get a thorough overview of machine learning capabilities of PySpark using ML and MLlib graph processing using GraphFrames and polyglot persistence using Blaze Finally you will learn how to deploy your applications to the cloud using the spark submit command By the end of this book you will have established a firm understanding of the Spark Python API and how it can be used to build data intensive applications Style and approach This book takes a very comprehensive step by step approach so you understand how the Spark ecosystem can be used with Python to develop efficient scalable solutions Every chapter is standalone and written in a very easy to understand manner with a focus on both the hows and the whys of each concept **Big Data Processing with Apache Spark** Srini Penchikala,2018-03-13 Apache Spark is a popular open source big data processing framework that s built around speed ease of use and unified distributed computing architecture Not only it supports developing applications in different languages like Java Scala Python and R it s also hundred times faster in memory and ten times faster even when running on disk compared to traditional data processing frameworks Whether you are currently working on a big data project or interested in learning more about topics like machine learning streaming data processing and graph data analytics this book is for you You can learn about Apache Spark and develop Spark programs for various use cases in big data analytics using the code examples provided This book covers all the libraries in Spark ecosystem Spark Core Spark SQL Spark Streaming Spark ML and Spark GraphX Mastering Spark for Data Science Andrew Morgan,Antoine Amend,David George,Matthew Hallett,2017-03-29

Master the techniques and sophisticated analytics used to construct Spark based solutions that scale to deliver production grade data science products About This Book Develop and apply advanced analytical techniques with Spark Learn how to tell a compelling story with data science using Spark s ecosystem Explore data at scale and work with cutting edge data science methods Who This Book Is For This book is for those who have beginner level familiarity with the Spark architecture and data science applications especially those who are looking for a challenge and want to learn cutting edge techniques This book assumes working knowledge of data science common machine learning methods and popular data science tools and assumes you have previously run proof of concept studies and built prototypes What You Will Learn Learn the design patterns that integrate Spark into industrialized data science pipelines See how commercial data scientists design scalable code and reusable code for data science services Explore cutting edge data science methods so that you can study trends and causality Discover advanced programming techniques using RDD and the DataFrame and Dataset APIs Find out how Spark can be used as a universal ingestion engine tool and as a web scraper Practice the implementation of advanced topics in graph processing such as community detection and contact chaining Get to know the best practices when performing Extended Exploratory Data Analysis commonly used in commercial data science teams Study advanced Spark concepts solution design patterns and integration architectures Demonstrate powerful data science pipelines In Detail Data science seeks to transform the world using data and this is typically achieved through disrupting and changing real processes in real industries In order to operate at this level you need to build data science solutions of substance solutions that solve real problems Spark has emerged as the big data platform of choice for data scientists due to its speed scalability and easy to use APIs This book deep dives into using Spark to deliver production grade data science solutions This process is demonstrated by exploring the construction of a sophisticated global news analysis service that uses Spark to generate continuous geopolitical and current affairs insights You will learn all about the core Spark APIs and take a comprehensive tour of advanced libraries including Spark SQL Spark Streaming MLlib and more You will be introduced to advanced techniques and methods that will help you to construct commercial grade data products Focusing on a sequence of tutorials that deliver a working news intelligence service you will learn about advanced Spark architectures how to work with geographic data in Spark and how to tune Spark algorithms so they scale linearly Style and approach This is an advanced guide for those with beginner level familiarity with the Spark architecture and working with Data Science applications Mastering Spark for Data Science is a practical tutorial that uses core Spark APIs and takes a deep dive into advanced libraries including Spark SQL visual streaming and MLlib This book expands on titles like Machine Learning with Spark and Learning Spark It is the next learning curve for those comfortable with Spark and looking to improve their skills *Big Data Analysis with Python* Ivan Marin,Ankit Shukla,Sarang VK,2019-04-10 Get to grips with processing large volumes of data and presenting it as engaging interactive insights using Spark and Python Key FeaturesGet a hands on fast paced introduction to the Python data science

stackExplore ways to create useful metrics and statistics from large datasetsCreate detailed analysis reports with real world dataBook Description Processing big data in real time is challenging due to scalability information inconsistency and fault tolerance Big Data Analysis with Python teaches you how to use tools that can control this data avalanche for you With this book you ll learn practical techniques to aggregate data into useful dimensions for posterior analysis extract statistical measurements and transform datasets into features for other systems The book begins with an introduction to data manipulation in Python using pandas You ll then get familiar with statistical analysis and plotting techniques With multiple hands on activities in store you ll be able to analyze data that is distributed on several computers by using Dask As you progress you ll study how to aggregate data for plots when the entire data cannot be accommodated in memory You ll also explore Hadoop HDFS and YARN which will help you tackle larger datasets The book also covers Spark and explains how it interacts with other tools By the end of this book you ll be able to bootstrap your own Python environment process large files and manipulate data to generate statistics metrics and graphs What you will learnUse Python to read and transform data into different formatsGenerate basic statistics and metrics using data on diskWork with computing tasks distributed over a clusterConvert data from various sources into storage or querying formatsPrepare data for statistical analysis visualization and machine learningPresent data in the form of effective visualsWho this book is for Big Data Analysis with Python is designed for Python developers data analysts and data scientists who want to get hands on with methods to control data and transform it into impactful insights Basic knowledge of statistical measurements and relational databases will help you to understand various concepts explained in this book

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Learning Spark Lightning Fast Big Data Analysis Andy Konwinski Introduction

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