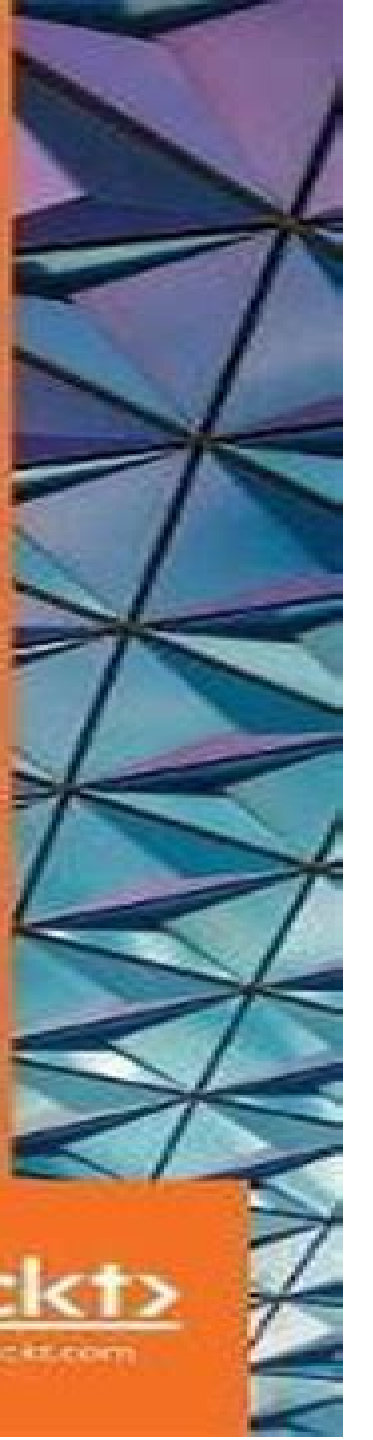
Book Collection

Learning Path

Apache Spark 2: Data Processing and Real-Time Analytics

Master complex big data processing, stream analytics, and machine learning with Apache Spark



Romeo Kienzler, Md Rezaul Karim, Sridhar Alla, Siamak Amirghodsi, Meenakshi Rajendran, Broderick Hall and Shuen Mei

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Apache Spark 2 0 Ga Machine Learning Analytics Cloud

Siamak Amirghodsi,Meenakshi Rajendran,Broderick Hall,Shuen Mei

Apache Spark 2 0 Ga Machine Learning Analytics Cloud:

Innovation and Creativity in Tourism, Business and Social Sciences Vicky Katsoni,Carlos Costa,2025-06-03 This book is the first volume of the proceedings of the 11th International Conference of the International Association of Cultural and Digital Tourism IACuDiT Focusing on Innovation and Creativity in Tourism Business and Social Sciences the conference was held from September 3 to 5 2024 in Naxos Greece The book showcases the latest research on tourism business technology and the social sciences and presents a critical academic discourse on ICT adoption in the social sciences regional development sustainability and tourism experience smart and sustainable practices innovations in museum interpretation and collections management emerging and disruptive technologies gaming gamification and augmented reality and other topical aspects in business and the social sciences The book discusses these digital transformation processes from various standpoints including its effect on the social sciences combined with specific forms of tourism The impact of digitalization encourages the emergence of new digital products and services based on the principle of flexibility The book focuses on the knowledge economy and the smart destinations concepts and highlights new modes of tourism management and development while further chapters address emerging technologies such as the Internet of Things AI big data and robotics in a range of tourism practices *Apache Spark for Machine Learning* Deepak Gowda,2024-11-01 Develop your data science skills with Apache Spark to solve real world problems for Fortune 500 companies using scalable algorithms on large cloud computing clusters Key Features Apply techniques to analyze big data and uncover valuable insights for machine learning Learn to use cloud computing clusters for training machine learning models on large datasets Discover practical strategies to overcome challenges in model training deployment and optimization Purchase of the print or Kindle book includes a free PDF eBook Book DescriptionIn the world of big data efficiently processing and analyzing massive datasets for machine learning can be a daunting task Written by Deepak Gowda a data scientist with over a decade of experience and 30 patents this book provides a hands on guide to mastering Spark s capabilities for efficient data processing model building and optimization With Deepak s expertise across industries such as supply chain cybersecurity and data center infrastructure he makes complex concepts easy to follow through detailed recipes This book takes you through core machine learning concepts highlighting the advantages of Spark for big data analytics It covers practical data preprocessing techniques including feature extraction and transformation supervised learning methods with detailed chapters on regression and classification and unsupervised learning through clustering and recommendation systems You ll also learn to identify frequent patterns in data and discover effective strategies to deploy and optimize your machine learning models Each chapter features practical coding examples and real world applications to equip you with the knowledge and skills needed to tackle complex machine learning tasks By the end of this book you ll be ready to handle big data and create advanced machine learning models with Apache Spark What you will learn Master Apache Spark for efficient large scale data processing and analysis Understand

core machine learning concepts and their applications with Spark Implement data preprocessing techniques for feature extraction and transformation Explore supervised learning methods regression and classification algorithms Apply unsupervised learning for clustering tasks and recommendation systems Discover frequent pattern mining techniques to uncover data trends Who this book is for This book is ideal for data scientists ML engineers data engineers students and researchers who want to deepen their knowledge of Apache Spark s tools and algorithms It s a must have for those struggling to scale models for real world problems and a valuable resource for preparing for interviews at Fortune 500 companies focusing on large dataset analysis model training and deployment **Apache Spark 2.x Machine Learning Cookbook** Siamak Amirghodsi,Meenakshi Rajendran,Broderick Hall,Shuen Mei,2017-09-22 Simplify machine learning model implementations with Spark About This Book Solve the day to day problems of data science with Spark This unique cookbook consists of exciting and intuitive numerical recipes Optimize your work by acquiring cleaning analyzing predicting and visualizing your data Who This Book Is For This book is for Scala developers with a fairly good exposure to and understanding of machine learning techniques but lack practical implementations with Spark A solid knowledge of machine learning algorithms is assumed as well as hands on experience of implementing ML algorithms with Scala However you do not need to be acquainted with the Spark ML libraries and ecosystem What You Will Learn Get to know how Scala and Spark go hand in hand for developers when developing ML systems with Spark Build a recommendation engine that scales with Spark Find out how to build unsupervised clustering systems to classify data in Spark Build machine learning systems with the Decision Tree and Ensemble models in Spark Deal with the curse of high dimensionality in big data using Spark Implement Text analytics for Search Engines in Spark Streaming Machine Learning System implementation using Spark In Detail Machine learning aims to extract knowledge from data relying on fundamental concepts in computer science statistics probability and optimization Learning about algorithms enables a wide range of applications from everyday tasks such as product recommendations and spam filtering to cutting edge applications such as self driving cars and personalized medicine You will gain hands on experience of applying these principles using Apache Spark a resilient cluster computing system well suited for large scale machine learning tasks This book begins with a quick overview of setting up the necessary IDEs to facilitate the execution of code examples that will be covered in various chapters It also highlights some key issues developers face while working with machine learning algorithms on the Spark platform We progress by uncovering the various Spark APIs and the implementation of ML algorithms with developing classification systems recommendation engines text analytics clustering and learning systems Toward the final chapters we ll focus on building high end applications and explain various unsupervised methodologies and challenges to tackle when implementing with big data ML systems Style and approach This book is packed with intuitive recipes supported with line by line explanations to help you understand how to optimize your work flow and resolve problems when working with complex data modeling tasks and predictive algorithms

This is a valuable resource for data scientists and those working on large scale data projects **Apache Spark 2: Data Processing and Real-Time Analytics** Romeo Kienzler,Md. Rezaul Karim,Sridhar Alla,Siamak Amirghodsi,Meenakshi Rajendran,Broderick Hall,Shuen Mei,2018-12-21 Build efficient data flow and machine learning programs with this flexible multi functional open source cluster computing framework Key FeaturesMaster the art of real time big data processing and machine learning Explore a wide range of use cases to analyze large data Discover ways to optimize your work by using many features of Spark 2 x and ScalaBook Description Apache Spark is an in memory cluster based data processing system that provides a wide range of functionalities such as big data processing analytics machine learning and more With this Learning Path you can take your knowledge of Apache Spark to the next level by learning how to expand Spark s functionality and building your own data flow and machine learning programs on this platform You will work with the different modules in Apache Spark such as interactive querying with Spark SQL using DataFrames and datasets implementing streaming analytics with Spark Streaming and applying machine learning and deep learning techniques on Spark using MLlib and various external tools By the end of this elaborately designed Learning Path you will have all the knowledge you need to master Apache Spark and build your own big data processing and analytics pipeline quickly and without any hassle This Learning Path includes content from the following Packt products Mastering Apache Spark 2 x by Romeo KienzlerScala and Spark for Big Data Analytics by Md Rezaul Karim Sridhar AllaApache Spark 2 x Machine Learning Cookbook by Siamak Amirghodsi Meenakshi Rajendran Broderick Hall Shuen MeiCookbookWhat you will learnGet to grips with all the features of Apache Spark 2 xPerform highly optimized real time big data processing Use ML and DL techniques with Spark MLlib and third party toolsAnalyze structured and unstructured data using SparkSQL and GraphXUnderstand tuning debugging and monitoring of big data applications Build scalable and fault tolerant streaming applications Develop scalable recommendation enginesWho this book is for If you are an intermediate level Spark developer looking to master the advanced capabilities and use cases of Apache Spark 2 x this Learning Path is ideal for you Big data professionals who want to learn how to integrate and use the features of Apache Spark and build a strong big data pipeline will also find this Learning Path useful To grasp the concepts explained in this Learning Path you must know the fundamentals of Apache Spark and Scala *Apache Spark 2.x Machine Learning Cookbook* Siamak Amirghodsi,Meenakshi Rajendran,Broderick Hall,Shuen Mei,2017 Simplify machine learning model implementations with Spark About This Book Solve the day to day problems of data science with Spark This unique cookbook consists of exciting and intuitive numerical recipes Optimize your work by acquiring cleaning analyzing predicting and visualizing your data Who This Book Is For This book is for Scala developers with a fairly good exposure to and understanding of machine learning techniques but lack practical implementations with Spark A solid knowledge of machine learning algorithms is assumed as well as hands on experience of implementing ML algorithms with Scala However you do not need to be acquainted with the Spark ML libraries and ecosystem What You Will Learn Get to know how Scala and

Spark go hand in hand for developers when developing ML systems with Spark Build a recommendation engine that scales with Spark Find out how to build unsupervised clustering systems to classify data in Spark Build machine learning systems with the Decision Tree and Ensemble models in Spark Deal with the curse of high dimensionality in big data using Spark Implement Text analytics for Search Engines in Spark Streaming Machine Learning System implementation using Spark In Detail Machine learning aims to extract knowledge from data relying on fundamental concepts in computer science statistics probability and optimization Learning about algorithms enables a wide range of applications from everyday tasks such as product recommendations and spam filtering to cutting edge applications such as self driving cars and personalized medicine You will gain hands on experience of applying these principles using Apache Spark a resilient cluster computing system well suited for large scale machine learning tasks This book begins with a quick overview of setting up the necessary IDEs to facilitate the execution of code examples that will be covered in various chapters It also highlights some key issues developers face while working with machine learning algorithms on the Spark platform We progress by uncovering the various Spark APIs and the implementation of ML algorithms with developing classification systems recommendation engines text analytics clustering and learning systems Toward the final chapters we ll focus on building high end applications and explain various unsupervised methodologies and challenges to tackle when implementing with big data ML systems Style and approach This book is packed with intu Machine Learning with Spark - Second Edition Rajdeep Dua,Manpreet Singh Ghotra,Nick Pentreath,2017 Create scalable machine learning applications to power a modern data driven business using Spark 2 xAbout This Book Get to the grips with the latest version of Apache Spark Utilize Spark s machine learning library to implement predictive analytics Leverage Spark s powerful tools to load analyze clean and transform your dataWho This Book Is ForIf you have a basic knowledge of machine learning and want to implement various machine learning concepts in the context of Spark ML this book is for you You should be well versed with the Scala and Python languages What You Will Learn Get hands on with the latest version of Spark ML Create your first Spark program with Scala and Python Set up and configure a development environment for Spark on your own computer as well as on Amazon EC2 Access public machine learning datasets and use Spark to load process clean and transform data Use Spark s machine learning library to implement programs by utilizing well known machine learning models Deal with large scale text data including feature extraction and using text data as input to your machine learning models Write Spark functions to evaluate the performance of your machine learning modelsIn DetailThis book will teach you about popular machine learning algorithms and their implementation You will learn how various machine learning concepts are implemented in the context of Spark ML You will start by installing Spark in a single and multinode cluster Next you ll see how to execute Scala and Python based programs for Spark ML Then we will take a few datasets and go deeper into clustering classification and regression Toward the end we will also cover text processing using Spark ML Once you have learned the concepts they can be applied to implement algorithms in either green

field implementations or to migrate existing systems to this new platform You can migrate from Mahout or Scikit to use Spark ML By the end of this book you will acquire the skills to leverage Spark s features to create your own scalable machine learning applications and power a modern data driven business Style and approachThis practical tutorial with real world use cases enables you to develop your own machine learning systems with Spark The examples will help you combine various techniques and models into an intelligent machine learning system *Apache Spark 2.X Cookbook* Rishi Yadav,2017-05-31 Over 70 recipes to help you use Apache Spark as your single big data computing platform and master its librariesAbout This Book This book contains recipes on how to use Apache Spark as a unified compute engine Cover how to connect various source systems to Apache Spark Covers various parts of machine learning including supervised unsupervised learning recommendation enginesWho This Book Is ForThis book is for data engineers data scientists and those who want to implement Spark for real time data processing Anyone who is using Spark or is planning to will benefit from this book The book assumes you have a basic knowledge of Scala as a programming language What You Will Learn Install and configure Apache Spark with various cluster managers on AWS Set up a development environment for Apache Spark including Databricks Cloud notebook Find out how to operate on data in Spark with schemas Get to grips with real time streaming analytics using Spark Streaming Structured Streaming Master supervised learning and unsupervised learning using MLlib Build a recommendation engine using MLlib Graph processing using GraphX and GraphFrames libraries Develop a set of common applications or project types and solutions that solve complex big data problemsIn DetailWhile Apache Spark 1 x gained a lot of traction and adoption in the early years Spark 2 x delivers notable improvements in the areas of API schema awareness Performance Structured Streaming and simplifying building blocks to build better faster smarter and more accessible big data applications This book uncovers all these features in the form of structured recipes to analyze and mature large and complex sets of data Starting with installing and configuring Apache Spark with various cluster managers you will learn to set up development environments Further on you will be introduced to working with RDDs DataFrames and Datasets to operate on schema aware data and real time streaming with various sources such as Twitter Stream and Apache Kafka You will also work through recipes on machine learning including supervised learning unsupervised learning recommendation engines in Spark Last but not least the final few chapters delve deeper into the concepts of graph processing using GraphX securing your implementations cluster optimization and troubleshooting Style and approachThis book is packed with intuitive recipes supported with line by line explanations to help you understand Spark 2 x s real time processing capabilities and deploy scalable big data solutions This is a valuable resource for data scientists and those working on large scale data projects *Mastering Apache Spark 2.x* Romeo Kienzler,2017-07-20 Advanced analytics on your Big Data with latest Apache Spark 2 xAbout This Book An advanced guide with a combination of instructions and practical examples to extend the most up to date Spark functionalities Extend your data processing capabilities to process huge chunk of data in minimum time

using advanced concepts in Spark Master the art of real time processing with the help of Apache Spark 2 xWho This Book Is ForIf you are a developer with some experience with Spark and want to strengthen your knowledge of how to get around in the world of Spark then this book is ideal for you Basic knowledge of Linux Hadoop and Spark is assumed Reasonable knowledge of Scala is expected What You Will Learn Examine Advanced Machine Learning and DeepLearning with MLlib SparkML SystemML H2O and DeepLearning4J Study highly optimised unified batch and real time data processing using SparkSQL and Structured Streaming Evaluate large scale Graph Processing and Analysis using GraphX and GraphFrames Apply Apache Spark in Elastic deployments using Jupyter and Zeppelin Notebooks Docker Kubernetes and the IBM Cloud Understand internal details of cost based optimizers used in Catalyst SystemML and GraphFrames Learn how specific parameter settings affect overall performance of an Apache Spark cluster Leverage Scala R and python for your data science projectsIn DetailApache Spark is an in memory cluster based parallel processing system that provides a wide range of functionalities such as graph processing machine learning stream processing and SQL This book aims to take your knowledge of Spark to the next level by teaching you how to expand Spark s functionality and implement your data flows and machine deep learning programs on top of the platform The book commences with an overview of the Spark ecosystem It will introduce you to Project Tungsten and Catalyst two of the major advancements of Apache Spark 2 x You will understand how memory management and binary processing cache aware computation and code generation are used to speed things up dramatically The book extends to show how to incorporate H20 SystemML and Deeplearning4j for machine learning and Jupyter Notebooks and Kubernetes Docker for cloud based Spark During the course of the book you will learn about the latest enhancements to Apache Spark 2 x such as interactive querying of live data and unifying DataFrames and Datasets You will also learn about the updates on the APIs and how DataFrames and Datasets affect SQL machine learning graph processing and streaming You will learn to use Spark as a big data operating system understand how to implement advanced analytics on the new APIs and explore how easy it is to use Spark in day to day tasks Style and approachThis book is an extensive guide to Apache Spark modules and tools and shows how Spark s functionality can be extended for real time processing and storage with worked examples **Beginning Apache Spark 2** Hien Luu,2018-08-16 Develop applications for the big data landscape with Spark and Hadoop This book also explains the role of Spark in developing scalable machine learning and analytics applications with Cloud technologies Beginning Apache Spark 2 gives you an introduction to Apache Spark and shows you how to work with it Along the way you ll discover resilient distributed datasets RDDs use Spark SQL for structured data and learn stream processing and build real time applications with Spark Structured Streaming Furthermore you ll learn the fundamentals of Spark ML for machine learning and much more After you read this book you will have the fundamentals to become proficient in using Apache Spark and know when and how to apply it to your big data applications What You Will Learn Understand Spark unified data processing platform Howto run Spark in Spark Shell or Databricks Use

and manipulate RDDs Deal with structured data using Spark SQL through its operations and advanced functions Build real time applications using Spark Structured Streaming Develop intelligent applications with the Spark Machine Learning library Who This Book Is For Programmers and developers active in big data Hadoop and Java but who are new to the Apache Spark platform **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 Big Data Processing Using Spark in Cloud Mamta Mittal,Valentina E. Balas,Lalit Mohan Goyal,Raghvendra Kumar,2018-06-16 The book describes the emergence of big data technologies and the role of Spark in the entire big data stack It compares Spark and Hadoop and identifies the shortcomings of Hadoop that have

been overcome by Spark The book mainly focuses on the in depth architecture of Spark and our understanding of Spark RDDs and how RDD complements big data s immutable nature and solves it with lazy evaluation cacheable and type inference It also addresses advanced topics in Spark starting with the basics of Scala and the core Spark framework and exploring Spark data frames machine learning using Mllib graph analytics using Graph X and real time processing with Apache Kafka AWS Kenisis and Azure Event Hub It then goes on to investigate Spark using PySpark and R Focusing on the current big data stack the book examines the interaction with current big data tools with Spark being the core processing layer for all types of data The book is intended for data engineers and scientists working on massive datasets and big data technologies in the cloud In addition to industry professionals it is helpful for aspiring data processing professionals and students working in big data processing and cloud computing environments *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 **Advanced Analytics with Spark** Sandy Ryza,Uri Laserson,Sean Owen,Josh Wills,2015-04-02 In 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 You ll start with an introduction to Spark and its ecosystem and then dive into patterns that apply common techniques classification collaborative filtering and anomaly detection among others 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 these patterns useful for working on your own data applications Patterns include Recommending music and the Audioscrobbler data set Predicting forest cover with decision trees Anomaly detection in network traffic with K means clustering Understanding Wikipedia with Latent Semantic Analysis Analyzing co occurrence networks with GraphX Geospatial and temporal data analysis on the New York City Taxi Trips data Estimating financial risk through Monte Carlo simulation Analyzing genomics data and the BDG project Analyzing neuroimaging data with PySpark and Thunder

Machine Learning with Apache Spark Quick Start Guide Jillur Quddus,2018-12-26 Combine advanced analytics including

Machine Learning Deep Learning Neural Networks and Natural Language Processing with modern scalable technologies including Apache Spark to derive actionable insights from Big Data in real time Key FeaturesMake a hands on start in the fields of Big Data Distributed Technologies and Machine LearningLearn how to design develop and interpret the results of common Machine Learning algorithmsUncover hidden patterns in your data in order to derive real actionable insights and business valueBook Description Every person and every organization in the world manages data whether they realize it or not Data is used to describe the world around us and can be used for almost any purpose from analyzing consumer habits to fighting disease and serious organized crime Ultimately we manage data in order to derive value from it and many organizations around the world have traditionally invested in technology to help process their data faster and more efficiently But we now live in an interconnected world driven by mass data creation and consumption where data is no longer rows and columns restricted to a spreadsheet but an organic and evolving asset in its own right With this realization comes major challenges for organizations how do we manage the sheer size of data being created every second think not only spreadsheets and databases but also social media posts images videos music blogs and so on And once we can manage all of this data how do we derive real value from it The focus of Machine Learning with Apache Spark is to help us answer these questions in a hands on manner We introduce the latest scalable technologies to help us manage and process big data We then introduce advanced analytical algorithms applied to real world use cases in order to uncover patterns derive actionable insights and learn from this big data What you will learnUnderstand how Spark fits in the context of the big data ecosystemUnderstand how to deploy and configure a local development environment using Apache SparkUnderstand how to design supervised and unsupervised learning modelsBuild models to perform NLP deep learning and cognitive services using Spark ML librariesDesign real time machine learning pipelines in Apache SparkBecome familiar with advanced techniques for processing a large volume of data by applying machine learning algorithmsWho this book is for This book is aimed at Business Analysts Data Analysts and Data Scientists who wish to make a hands on start in order to take advantage of modern Big Data technologies combined with Advanced Analytics *Mastering Apache Spark 2.x* Romeo Kienzler,2017-07-26 Advanced analytics on your Big Data with latest Apache Spark 2 x About This Book An advanced guide with a combination of instructions and practical examples to extend the most up to date Spark functionalities Extend your data processing capabilities to process huge chunk of data in minimum time using advanced concepts in Spark Master the art of real time processing with the help of Apache Spark 2 x Who This Book Is For If you are a developer with some experience with Spark and want to strengthen your knowledge of how to get around in the world of Spark then this book is ideal for you Basic knowledge of Linux Hadoop and Spark is assumed Reasonable knowledge of Scala is expected What You Will Learn Examine Advanced Machine Learning and DeepLearning with MLlib SparkML SystemML H2O and DeepLearning4J Study highly optimised unified batch and real time data processing using SparkSQL and Structured Streaming Evaluate large scale Graph

Processing and Analysis using GraphX and GraphFrames Apply Apache Spark in Elastic deployments using Jupyter and Zeppelin Notebooks Docker Kubernetes and the IBM Cloud Understand internal details of cost based optimizers used in Catalyst SystemML and GraphFrames Learn how specific parameter settings affect overall performance of an Apache Spark cluster Leverage Scala R and python for your data science projects In Detail Apache Spark is an in memory cluster based parallel processing system that provides a wide range of functionalities such as graph processing machine learning stream processing and SQL This book aims to take your knowledge of Spark to the next level by teaching you how to expand Spark s functionality and implement your data flows and machine deep learning programs on top of the platform The book commences with an overview of the Spark ecosystem It will introduce you to Project Tungsten and Catalyst two of the major advancements of Apache Spark 2 x You will understand how memory management and binary processing cache aware computation and code generation are used to speed things up dramatically The book extends to show how to incorporate H20 SystemML and Deeplearning4j for machine learning and Jupyter Notebooks and Kubernetes Docker for cloud based Spark During the course of the book you will learn about the latest enhancements to Apache Spark 2 x such as interactive querying of live data and unifying DataFrames and Datasets You will also learn about the updates on the APIs and how DataFrames and Datasets affect SQL machine learning graph processing and streaming You will learn to use Spark as a big data operating system understand how to implement advanced analytics on the new APIs and explore how easy it is to use Spark in day to day tasks Style and approach This book is an extensive guide to Apache Spark modules and tools and shows how Spark s functionality can be extended for real time processing and storage with worked examples **Big Data Analytics** Venkat Ankam,2016-09-28 A handy reference guide for data analysts and data scientists to help to obtain value from big data analytics using Spark on Hadoop clusters About This Book This book is based on the latest 2 0 version of Apache Spark and 2 7 version of Hadoop integrated with most commonly used tools Learn all Spark stack components including latest topics such as DataFrames DataSets GraphFrames Structured Streaming DataFrame based ML Pipelines and SparkR Integrations with frameworks such as HDFS YARN and tools such as Jupyter Zeppelin NiFi Mahout HBase Spark Connector GraphFrames H2O and Hivemall Who This Book Is For Though this book is primarily aimed at data analysts and data scientists it will also help architects programmers and practitioners Knowledge of either Spark or Hadoop would be beneficial It is assumed that you have basic programming background in Scala Python SQL or R programming with basic Linux experience Working experience within big data environments is not mandatory What You Will Learn Find out and implement the tools and techniques of big data analytics using Spark on Hadoop clusters with wide variety of tools used with Spark and Hadoop Understand all the Hadoop and Spark ecosystem components Get to know all the Spark components Spark Core Spark SQL DataFrames DataSets Conventional and Structured Streaming MLLib ML Pipelines and Graphx See batch and real time data analytics using Spark Core Spark SQL and Conventional and Structured Streaming Get to grips with data science and

machine learning using MLLib ML Pipelines H2O Hivemall Graphx SparkR and Hivemall In Detail Big Data Analytics book aims at providing the fundamentals of Apache Spark and Hadoop All Spark components Spark Core Spark SQL DataFrames Data sets Conventional Streaming Structured Streaming MLlib Graphx and Hadoop core components HDFS MapReduce and Yarn are explored in greater depth with implementation examples on Spark Hadoop clusters It is moving away from MapReduce to Spark So advantages of Spark over MapReduce are explained at great depth to reap benefits of in memory speeds DataFrames API Data Sources API and new Data set API are explained for building Big Data analytical applications Real time data analytics using Spark Streaming with Apache Kafka and HBase is covered to help building streaming applications New Structured streaming concept is explained with an IOT Internet of Things use case Machine learning techniques are covered using MLLib ML Pipelines and SparkR and Graph Analytics are covered with GraphX and GraphFrames components of Spark Readers will also get an opportunity to get started with web based notebooks such as Jupyter Apache Zeppelin and data flow tool Apache NiFi to analyze and visualize data Style and approach This step by step pragmatic guide will make life easy no matter what your level of experience You will deep dive into Apache Spark on Hadoop clusters through ample exciting real life examples Practical tutorial explains data science in simple terms to help programmers and data analysts get started with Data Science *Agile Data Science 2.0* Russell Jurney,2017-06-07 Data science teams looking to turn research into useful analytics applications require not only the right tools but also the right approach if they re to succeed With the revised second edition of this hands on guide up and coming data scientists will learn how to use the Agile Data Science development methodology to build data applications with Python Apache Spark Kafka and other tools Author Russell Jurney demonstrates how to compose a data platform for building deploying and refining analytics applications with Apache Kafka MongoDB ElasticSearch d3 js scikit learn and Apache Airflow You ll learn an iterative approach that lets you quickly change the kind of analysis you re doing depending on what the data is telling you Publish data science work as a web application and affect meaningful change in your organization Build value from your data in a series of agile sprints using the data value pyramid Extract features for statistical models from a single dataset Visualize data with charts and expose different aspects through interactive reports Use historical data to predict the future via classification and regression Translate predictions into actions Get feedback from users after each sprint to keep your project on track

Beginning Apache Spark Using Azure Databricks Robert Ilijason,2020-06-11 Analyze vast amounts of data in record time using Apache Spark with Databricks in the Cloud Learn the fundamentals and more of running analytics on large clusters in Azure and AWS using Apache Spark with Databricks on top Discover how to squeeze the most value out of your data at a mere fraction of what classical analytics solutions cost while at the same time getting the results you need incrementally faster This book explains how the confluence of these pivotal technologies gives you enormous power and cheaply when it comes to huge datasets You will begin by learning how cloud infrastructure makes it possible to scale your code to large

amounts of processing units without having to pay for the machinery in advance From there you will learn how Apache Spark an open source framework can enable all those CPUs for data analytics use Finally you will see how services such as Databricks provide the power of Apache Spark without you having to know anything aboutconfiguring hardware or software By removing the need for expensive experts and hardware your resources can instead be allocated to actually finding business value in the data This book guides you through some advanced topics such as analytics in the cloud data lakes data ingestion architecture machine learning and tools including Apache Spark Apache Hadoop Apache Hive Python and SQL Valuable exercises help reinforce what you have learned What You Will Learn Discover the value of big data analytics that leverage the power of the cloud Get started with Databricks using SQL and Python in either Microsoft Azure or AWS Understand the underlying technology and how the cloud and Apache Spark fit into the bigger picture See how these tools are used in the real world Run basic analytics including machine learning on billions of rows at a fraction of a cost or free Who This Book Is For Data engineers data scientists and cloud architects who want or need to run advanced analytics in the cloud It is assumed that the reader has data experience but perhaps minimal exposure to Apache Spark and Azure Databricks The book is also recommended for people who want to get started in the analytics field as it provides a strong foundation

Machine Learning with Spark Rajdeep Dua,Manpreet Singh Ghotra,Nick Pentreath,2017-04-28 Create scalable machine learning applications to power a modern data driven business using Spark 2 x About This Book Get to the grips with the latest version of Apache Spark Utilize Spark s machine learning library to implement predictive analytics Leverage Spark s powerful tools to load analyze clean and transform your data Who This Book Is For If you have a basic knowledge of machine learning and want to implement various machine learning concepts in the context of Spark ML this book is for you You should be well versed with the Scala and Python languages What You Will Learn Get hands on with the latest version of Spark ML Create your first Spark program with Scala and Python Set up and configure a development environment for Spark on your own computer as well as on Amazon EC2 Access public machine learning datasets and use Spark to load process clean and transform data Use Spark s machine learning library to implement programs by utilizing well known machine learning models Deal with large scale text data including feature extraction and using text data as input to your machine learning models Write Spark functions to evaluate the performance of your machine learning models In Detail This book will teach you about popular machine learning algorithms and their implementation You will learn how various machine learning concepts are implemented in the context of Spark ML You will start by installing Spark in a single and multinode cluster Next you ll see how to execute Scala and Python based programs for Spark ML Then we will take a few datasets and go deeper into clustering classification and regression Toward the end we will also cover text processing using Spark ML Once you have learned the concepts they can be applied to implement algorithms in either green field implementations or to migrate existing systems to this new platform You can migrate from Mahout or Scikit to use Spark ML By the end of this book you will

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