Machine Learning with Spark

Create scalable machine learning applications to power a modern data-driven business using Spark

Nick Pentreath

Machine Learning With Spark Pentreath Nick

Jules S. Damji,Brooke Wenig,Tathagata Das,Denny Lee

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    Machine Learning with Spark Nick Pentreath,2015-02-20 If you are a Scala Java or Python developer with an interest in machine learning and data analysis and are eager to learn how to apply common machine learning techniques at scale using the Spark framework this is the book for you While it may be useful to have a basic understanding of Spark no previous experience is required   *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 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 approach This 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   **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

Practical Machine Learning Sunila Gollapudi,2016-01-30 Tackle the real world complexities of modern machine learning with innovative cutting edge techniques About This Book Fully coded working examples using a wide range of machine learning libraries and tools including Python R Julia and Spark Comprehensive practical solutions taking you into the future of machine learning Go a step further and integrate your machine learning projects with Hadoop Who This Book Is For This book has been created for data scientists who want to see machine learning in action and explore its real world application With guidance on everything from the fundamentals of machine learning and predictive analytics to the latest innovations set to lead the big data revolution into the future this is an unmissable resource for anyone dedicated to tackling current big data challenges Knowledge of programming Python and R and mathematics is advisable if you want to get started immediately What You Will Learn Implement a wide range of algorithms and techniques for tackling complex data Get to grips with some of the most powerful languages in data science including R Python and Julia Harness the capabilities of Spark and Hadoop to manage and process data successfully Apply the appropriate machine learning technique to address real world problems Get acquainted with Deep learning and find out how neural networks are being used at the cutting edge of machine learning Explore the future of machine learning and dive deeper into polyglot persistence semantic data and more In Detail Finding meaning in increasingly larger and more complex datasets is a growing demand of the modern world Machine learning and predictive analytics have become the most important approaches to uncover data gold mines Machine

learning uses complex algorithms to make improved predictions of outcomes based on historical patterns and the behaviour of data sets Machine learning can deliver dynamic insights into trends patterns and relationships within data immensely valuable to business growth and development This book explores an extensive range of machine learning techniques uncovering hidden tricks and tips for several types of data using practical and real world examples While machine learning can be highly theoretical this book offers a refreshing hands on approach without losing sight of the underlying principles Inside a full exploration of the various algorithms gives you high quality guidance so you can begin to see just how effective machine learning is at tackling contemporary challenges of big data This is the only book you need to implement a whole suite of open source tools frameworks and languages in machine learning We will cover the leading data science languages Python and R and the underrated but powerful Julia as well as a range of other big data platforms including Spark Hadoop and Mahout Practical Machine Learning is an essential resource for the modern data scientists who want to get to grips with its real world application With this book you will not only learn the fundamentals of machine learning but dive deep into the complexities of real world data before moving on to using Hadoop and its wider ecosystem of tools to process and manage your structured and unstructured data You will explore different machine learning techniques for both supervised and unsupervised learning from decision trees to Naive Bayes classifiers and linear and clustering methods you will learn strategies for a truly advanced approach to the statistical analysis of data The book also explores the cutting edge advancements in machine learning with worked examples and guidance on deep learning and reinforcement learning providing you with practical demonstrations and samples that help take the theory and mystery out of even the most advanced machine learning methodologies Style and approach A practical data science tutorial designed to give you an insight into the practical application of machine learning this book takes you through complex concepts and tasks in an accessible way Featuring information on a wide range of data science techniques Practical Machine Learning is a comprehensive data science resource **Apache Spark Graph Processing** Rindra Ramamonjison,2015-09-10 Build process and analyze large scale graph data effectively with Spark About This Book Find solutions for every stage of data processing from loading and transforming graph data to Improve the scalability of your graphs with a variety of real world applications with complete Scala code A concise guide to processing large scale networks with Apache Spark Who This Book Is For This book is for data scientists and big data developers who want to learn the processing and analyzing graph datasets at scale Basic programming experience with Scala is assumed Basic knowledge of Spark is assumed What You Will Learn Write build and deploy Spark applications with the Scala Build Tool Build and analyze large scale network datasets Analyze and transform graphs using RDD and graph specific operations Implement new custom graph operations tailored to specific needs Develop iterative and efficient graph algorithms using message aggregation and Pregel abstraction Extract subgraphs and use it to discover common clusters Analyze graph data and solve various data science problems using real world datasets

In Detail Apache Spark is the next standard of open source cluster computing engine for processing big data Many practical computing problems concern large graphs like the Web graph and various social networks The scale of these graphs in some cases billions of vertices trillions of edges poses challenges to their efficient processing Apache Spark GraphX API combines the advantages of both data parallel and graph parallel systems by efficiently expressing graph computation within the Spark data parallel framework This book will teach the user to do graphical programming in Apache Spark apart from an explanation of the entire process of graphical data analysis You will journey through the creation of graphs its uses its exploration and analysis and finally will also cover the conversion of graph elements into graph structures This book begins with an introduction of the Spark system its libraries and the Scala Build Tool Using a hands on approach this book will quickly teach you how to install and leverage Spark interactively on the command line and in a standalone Scala program Then it presents all the methods for building Spark graphs using illustrative network datasets Next it will walk you through the process of exploring visualizing and analyzing different network characteristics This book will also teach you how to transform raw datasets into a usable form In addition you will learn powerful operations that can be used to transform graph elements and graph structures Furthermore this book also teaches how to create custom graph operations that are tailored for specific needs with efficiency in mind The later chapters of this book cover more advanced topics such as clustering graphs implementing graph parallel iterative algorithms and learning methods from graph data Style and approach A step by step guide that will walk you through the key ideas and techniques for processing big graph data at scale with practical examples that will ensure an overall understanding of the concepts of Spark *Fast Data Processing with Spark 2* Krishna Sankar,2016-10-24 Learn how to use Spark to process big data at speed and scale for sharper analytics Put the principles into practice for faster slicker big data projects About This Book A quick way to get started with Spark and reap the rewards From analytics to engineering your big data architecture we ve got it covered Bring your Scala and Java knowledge and put it to work on new and exciting problems Who This Book Is For This book is for developers with little to no knowledge of Spark but with a background in Scala Java programming It s recommended that you have experience in dealing and working with big data and a strong interest in data science What You Will Learn Install and set up Spark in your cluster Prototype distributed applications with Spark s interactive shell Perform data wrangling using the new DataFrame APIs Get to know the different ways to interact with Spark s distributed representation of data RDDs Query Spark with a SQL like query syntax See how Spark works with big data Implement machine learning systems with highly scalable algorithms Use R the popular statistical language to work with Spark Apply interesting graph algorithms and graph processing with GraphX In Detail When people want a way to process big data at speed Spark is invariably the solution With its ease of development in comparison to the relative complexity of Hadoop it s unsurprising that it s becoming popular with data analysts and engineers everywhere Beginning with the fundamentals we ll show you how to get set up with Spark with minimum fuss You ll then get to grips

with some simple APIs before investigating machine learning and graph processing throughout we ll make sure you know exactly how to apply your knowledge You will also learn how to use the Spark shell how to load data before finding out how to build and run your own Spark applications Discover how to manipulate your RDD and get stuck into a range of DataFrame APIs As if that s not enough you ll also learn some useful Machine Learning algorithms with the help of Spark MLlib and integrating Spark with R We ll also make sure you re confident and prepared for graph processing as you learn more about the GraphX API Style and approach This book is a basic step by step tutorial that will help you take advantage of all that Spark has to offer **The Official Raspberry Pi Projects Book Volume 2** The Makers of The MagPi magazine,2016-11-01 The Official Raspberry Pi projects book returns with inspirational projects detailed step by step guides and product reviews based around the phenomenon that is the Raspberry Pi See why educators and makers adore the credit card sized computer that can be used to make robots retro games consoles and even art In this volume of The Official Raspberry Pi Projects Book you ll Get involved with the amazing and very active Raspberry Pi community Be inspired by incredible projects made by other people Learn how to make with your Raspberry Pi with our tutorials Find out about the top kits and accessories for your Pi projects And much much more If this is your first time using a Raspberry Pi you ll also find some very helpful guides to get you started with your Raspberry Pi journey With millions of Raspberry Pi boards out in the wild that s millions more people getting into digital making and turning their dreams into a Pi powered reality Being so spoilt for choice though means that we ve managed to compile an incredible list of projects guides and reviews for you This book was written using an earlier version of Raspberry Pi OS Please use Raspberry Pi OS Legacy for full compatibility See magpi cc legacy for more information **Spark를 다루는 기술** 홍장희,2016-01-04 *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 **Hands-On Deep Learning with Apache Spark** Guglielmo Iozzia,2019-01-31 Speed up the design and implementation of deep learning solutions using Apache Spark Key FeaturesExplore the world of distributed deep learning with Apache SparkTrain neural networks with deep learning libraries such as BigDL and TensorFlowDevelop Spark deep learning applications to intelligently handle large and complex datasetsBook Description Deep learning is a subset of machine learning where datasets with several layers of complexity can be processed Hands On Deep Learning with Apache Spark addresses the sheer complexity of technical and analytical parts and the speed at which deep learning solutions can be implemented on Apache Spark The book starts with the fundamentals of Apache Spark and deep learning You will set up Spark for deep learning learn principles of distributed modeling and understand different types of neural nets You will then implement deep learning models such as convolutional neural networks CNNs recurrent neural networks RNNs and long short term memory LSTM on Spark As you progress through the book you will gain hands on experience of what it takes to understand the complex datasets you are dealing with During the course of this book you will use popular deep learning frameworks such as TensorFlow Deeplearning4j and Keras to train your distributed models By the end of this book you ll have gained experience with the implementation of your models on a variety of use cases What you will learnUnderstand the basics of deep learningSet up Apache Spark for deep learningUnderstand the principles of distribution modeling and different types of neural networksObtain an understanding of deep learning algorithmsDiscover textual analysis and deep learning with SparkUse popular deep learning frameworks such as Deeplearning4j TensorFlow and KerasExplore popular deep learning algorithms Who this book is for If you are a Scala developer data scientist or data analyst who wants to learn how to use Spark for implementing efficient deep learning models Hands On Deep Learning with Apache Spark is for you Knowledge of the core machine learning concepts and some exposure to Spark will be helpful **Mastering Machine Learning with Spark 2.x** Alex Tellez,Max Pumperla,Michal Malohlava,2017-08-31 Unlock the complexities of machine learning algorithms

in Spark to generate useful data insights through this data analysis tutorial About This Book Process and analyze big data in a distributed and scalable way Write sophisticated Spark pipelines that incorporate elaborate extraction Build and use regression models to predict flight delays Who This Book Is For Are you a developer with a background in machine learning and statistics who is feeling limited by the current slow and small data machine learning tools Then this is the book for you In this book you will create scalable machine learning applications to power a modern data driven business using Spark We assume that you already know the machine learning concepts and algorithms and have Spark up and running whether on a cluster or locally and have a basic knowledge of the various libraries contained in Spark What You Will Learn Use Spark streams to cluster tweets online Run the PageRank algorithm to compute user influence Perform complex manipulation of DataFrames using Spark Define Spark pipelines to compose individual data transformations Utilize generated models for off line on line prediction Transfer the learning from an ensemble to a simpler Neural Network Understand basic graph properties and important graph operations Use GraphFrames an extension of DataFrames to graphs to study graphs using an elegant query language Use K means algorithm to cluster movie reviews dataset In Detail The purpose of machine learning is to build systems that learn from data Being able to understand trends and patterns in complex data is critical to success it is one of the key strategies to unlock growth in the challenging contemporary marketplace today With the meteoric rise of machine learning developers are now keen on finding out how can they make their Spark applications smarter This book gives you access to transform data into actionable knowledge The book commences by defining machine learning primitives by the MLlib and H2O libraries You will learn how to use Binary classification to detect the Higgs Boson particle in the huge amount of data produced by CERN particle collider and classify daily health activities using ensemble Methods for Multi Class Classification Next you will solve a typical regression problem involving flight delay predictions and write sophisticated Spark pipelines You will analyze Twitter data with help of the doc2vec algorithm and K means clustering Finally you will build different pattern mining models using MLlib perform complex manipulation of DataFrames using Spark and Spark SQL and deploy your app in a Spark streaming environment Style and approach This book takes a practical approach to help you get to grips with using Spark for analytics and to implement machine learning algorithms We ll teach you about advanced applications of machine learning through illustrative examples These examples will equip you to harness the potential of machine learning through Spark in a variety of enterprise grade systems   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 **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   Apache Spark Deep Learning Cookbook

Ahmed Sherif,Amrith Ravindra,2018-07-13 A solution based guide to put your deep learning models into production with the power of Apache Spark Key Features Discover practical recipes for distributed deep learning with Apache Spark Learn to use libraries such as Keras and TensorFlow Solve problems in order to train your deep learning models on Apache Spark Book Description With deep learning gaining rapid mainstream adoption in modern day industries organizations are looking for ways to unite popular big data tools with highly efficient deep learning libraries As a result this will help deep learning models train with higher efficiency and speed With the help of the Apache Spark Deep Learning Cookbook you ll work through specific recipes to generate outcomes for deep learning algorithms without getting bogged down in theory From setting up Apache Spark for deep learning to implementing types of neural net this book tackles both common and not so common problems to perform deep learning on a distributed environment In addition to this you ll get access to deep learning code within Spark that can be reused to answer similar problems or tweaked to answer slightly different problems You will also learn how to stream and cluster your data with Spark Once you have got to grips with the basics you ll explore how to implement and deploy deep learning models such as Convolutional Neural Networks CNN and Recurrent Neural Networks RNN in Spark using popular libraries such as TensorFlow and Keras By the end of the book you ll have the expertise to train and deploy efficient deep learning models on Apache Spark What you will learn Set up a fully functional Spark environment Understand practical machine learning and deep learning concepts Apply built in machine learning libraries within Spark Explore libraries that are compatible with TensorFlow and Keras Explore NLP models such as Word2vec and TF IDF on Spark Organize dataframes for deep learning evaluation Apply testing and training modeling to ensure accuracy Access readily available code that may be reusable Who this book is for If you re looking for a practical and highly useful resource for implementing efficiently distributed deep learning models with Apache Spark then the Apache Spark Deep Learning Cookbook is for you Knowledge of the core machine learning concepts and a basic understanding of the Apache Spark framework is required to get the best out of this book Additionally some programming knowledge in Python is a plus   **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 **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 <u>Learning Spark</u> 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 *Scaling Machine Learning with Spark* Adi Polak,2023-03-07 Learn how to build end to end scalable machine learning solutions with Apache Spark With this practical guide author Adi Polak introduces data and ML practitioners to creative solutions that supersede today s traditional methods You ll learn a more holistic approach that takes you beyond specific requirements and organizational goals allowing data and ML practitioners to collaborate and understand each other better Scaling Machine Learning with Spark examines several technologies for building end to end distributed ML workflows based on the Apache Spark ecosystem with Spark MLlib MLflow TensorFlow and PyTorch If you re a data scientist who works with machine learning this book shows you when and why to use each technology You will Explore machine learning including distributed computing concepts and terminology Manage the ML lifecycle with MLflow Ingest data and perform basic preprocessing with Spark Explore feature engineering and use Spark to extract features Train a model with MLlib and build a pipeline to reproduce it Build a data system to combine the power of Spark with deep learning Get a step by step example of working with distributed TensorFlow Use PyTorch to scale machine learning and its internal architecture *Apache Spark Machine Learning Cookbook* Siamak Amirghodsi,2016-10-31 Over 80 recipes to simplify machine learning model implementations with SparkAbout 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 dataWho This Book Is ForThis 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 SparkIn DetailMachine 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 bleeding edge applications such as self driving cars and personalized medicine You will gain hands on experience of applying these principles using Apache Spark a 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 It also highlights some key issues developers face while thinking about Scala for machine learning and during the switch over to Spark We progress by uncovering the various Spark APIs and the implementation of ML algorithms with developing classification systems recommendation engines clustering and learning systems Towards 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 **Beginning Apache Spark 3** Hien Luu,2021 Take a journey toward discovering learning and using Apache Spark 3 0 In this book you will gain expertise on the powerful and efficient distributed data processing engine inside of Apache Spark its user friendly comprehensive and flexible programming model for processing data in batch and streaming and the scalable machine learning algorithms and practical utilities to build machine learning applications Beginning Apache Spark 3 begins by explaining different ways of interacting with Apache Spark such as Spark Concepts and Architecture and Spark Unified Stack Next it offers an overview of Spark SQL before moving on to its advanced features It covers tips and techniques for dealing with performance issues followed by an overview of the structured streaming processing engine It concludes with a demonstration of how to develop machine learning applications using Spark MLlib and how to manage the machine learning development lifecycle This book is packed with practical examples and code snippets to help you master concepts and features immediately after they are covered in each section After reading this book you will have the knowledge required to build your own big data pipelines applications and machine learning applications You will Master the Spark unified data analytics engine and its various components Work in tandem to provide a scalable fault tolerant and performant data processing engine Leverage the user friendly and flexible programming model to perform simple to complex data analytics using dataframe and Spark SQL Develop machine learning applications using Spark MLlib Manage the machine learning development lifecycle using MLflow

Machine Learning With Spark Pentreath Nick Book Review: Unveiling the Power of Words

In some sort of driven by information and connectivity, the power of words has be more evident than ever. They have the ability to inspire, provoke, and ignite change. Such could be the essence of the book **Machine Learning With Spark Pentreath Nick**, a literary masterpiece that delves deep in to the significance of words and their affect our lives. Written by a renowned author, this captivating work takes readers on a transformative journey, unraveling the secrets and potential behind every word. In this review, we shall explore the book is key themes, examine its writing style, and analyze its overall impact on readers.

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Machine Learning With Spark Pentreath Nick Introduction

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