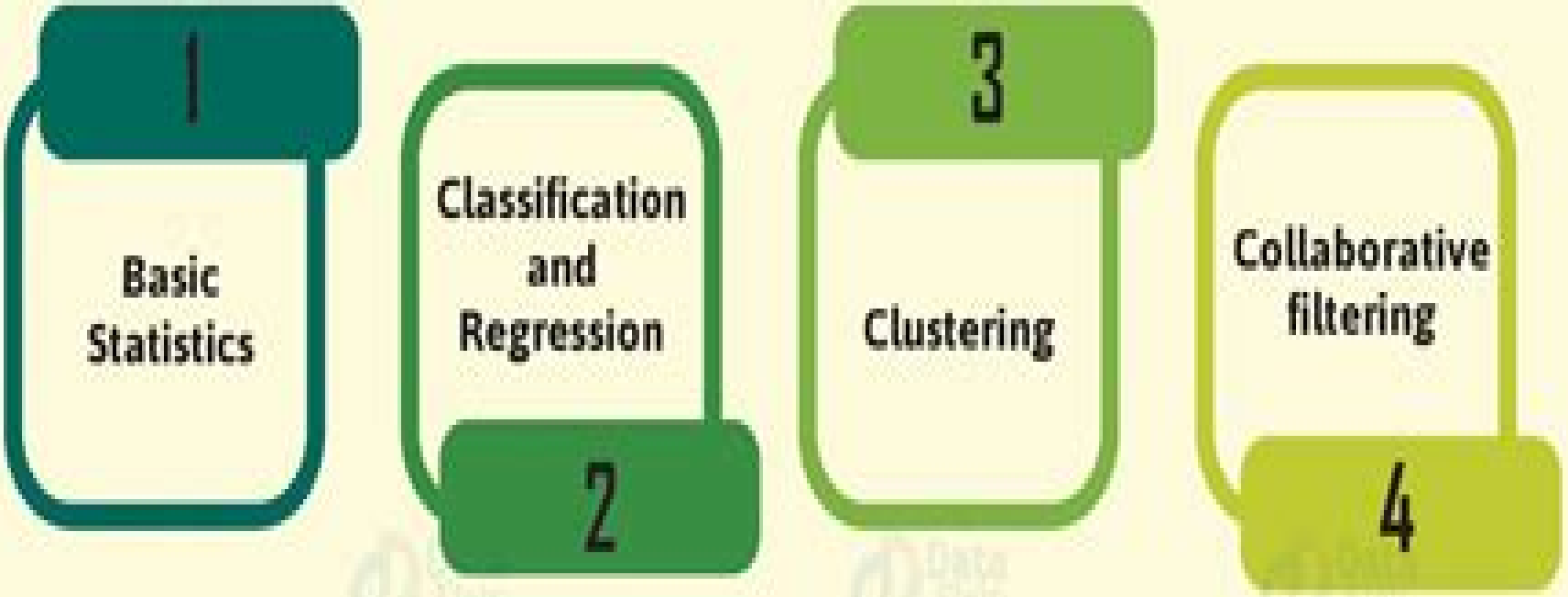
Machine Learning Algorithms in Apache Spark



Data Flair

Machine Learning With Spark Machine Learning With Spark

Adi Polak

Machine Learning With Spark Machine Learning With Spark:

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 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 - 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

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 **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 *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 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 **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 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 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

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

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

Advanced Machine Learning with Spark 2.x Tomasz Lelek,2018 The aim of this course is to provide a practical understanding of advanced Machine Learning algorithms in Apache Spark to make predictions and recommendation and derive insights from large distributed datasets This course starts with an introduction to the key concepts and data types that are fundamental to understanding distributed data processing and Machine Learning with Spark Further to this we provide practical recipes that demonstrate some of the most popular algorithms in Spark leading to the creation of sophisticated Machine Learning pipelines and applications The final sections are dedicated to more advanced use cases for Machine Learning streaming Natural Language Processing and Deep Learning In each section we briefly establish the theoretical basis of the topic under discussion and then cement our understanding with practical use cases Resource description page

Practical Machine Learning with Spark Gourav Gupta,Manish Gupta,Inder Singh Gupta,2022-10-17 Explore the cosmic secrets of Distributed Processing for Deep Learning applications KEY FEATURES In depth practical demonstration of ML DL concepts using Distributed Framework Covers graphical illustrations and visual explanations for ML DL pipelines Includes live codebase for each of NLP computer vision and machine learning applications DESCRIPTION This book provides the reader with an up to date explanation of Machine Learning and an in depth comprehensive and straightforward understanding of the architectural techniques used to evaluate and anticipate the futuristic insights of data using Apache Spark The book walks readers by setting up Hadoop and Spark installations on premises Docker and AWS Readers will learn about Spark MLib and how to utilize it in supervised and unsupervised machine learning scenarios With the help of Spark some of the most prominent technologies such as natural language processing and computer vision are evaluated and demonstrated in a realistic setting Using the capabilities of Apache Spark this book discusses the fundamental components that underlie each of these natural language processing computer vision and machine learning technologies as well as how you can incorporate these technologies into your business processes Towards the end of the book readers will learn about

several deep learning frameworks such as TensorFlow and PyTorch Readers will also learn to execute distributed processing of deep learning problems using the Spark programming language WHAT YOU WILL LEARN Learn how to get started with machine learning projects using Spark Witness how to use Spark MLib s design for machine learning and deep learning operations Use Spark in tasks involving NLP unsupervised learning and computer vision Experiment with Spark in a cloud environment and with AI pipeline workflows Run deep learning applications on a distributed network WHO THIS BOOK IS FOR This book is valuable for data engineers machine learning engineers data scientists data architects business analysts and technical consultants worldwide It would be beneficial to have some familiarity with the fundamentals of Hadoop and Python *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 Machine Learning with Spark and Python Michael Bowles,2019-10-15 Machine Learning with Spark and Python Essential Techniques for Predictive Analytics Second Edition simplifies ML for practical uses by focusing on two key algorithms This new second

edition improves with the addition of Spark a ML framework from the Apache foundation By implementing Spark machine learning students can easily process much large data sets and call the spark algorithms using ordinary Python code Machine Learning with Spark and Python focuses on two algorithm families linear methods and ensemble methods that effectively predict outcomes This type of problem covers many use cases such as what ad to place on a web page predicting prices in securities markets or detecting credit card fraud The focus on two families gives enough room for full descriptions of the mechanisms at work in the algorithms Then the code examples serve to illustrate the workings of the machinery with specific hackable code *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

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

Spark for Machine Learning & AI. ,2017 Apache Spark is one of the most widely used and supported open source tools for machine learning and big data In this course discover how to work with this powerful platform for machine learning Instructor Dan Sullivan discusses MLlib the Spark machine learning library which provides tools for data scientists and analysts who would rather find solutions to business problems than code test and maintain their own machine learning libraries He shows how to use DataFrames to organize data structure and he covers data preparation and the most commonly used types of machine learning algorithms clustering classification regression and recommendations By the end of the course you will have experience loading data into Spark preprocessing data as needed to apply MLlib algorithms and applying those algorithms to a variety of machine learning problems *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

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Machine Learning With Spark Machine Learning With Spark Introduction

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