

Big Data

Principles and best practices of
scalable realtime data systems

Nathan Marz
James Warren



MANNING

Big Data Principles And Best Practices Of Scalable Realtime Data Systems

Ying-Ying Zheng



Big Data Principles And Best Practices Of Scalable Realtime Data Systems:

Big Data James Warren, Nathan Marz, 2015-04-29 Summary Big Data teaches you to build big data systems using an architecture that takes advantage of clustered hardware along with new tools designed specifically to capture and analyze web scale data It describes a scalable easy to understand approach to big data systems that can be built and run by a small team Following a realistic example this book guides readers through the theory of big data systems how to implement them in practice and how to deploy and operate them once they re built Purchase of the print book includes a free eBook in PDF Kindle and ePub formats from Manning Publications About the Book Web scale applications like social networks real time analytics or e commerce sites deal with a lot of data whose volume and velocity exceed the limits of traditional database systems These applications require architectures built around clusters of machines to store and process data of any size or speed Fortunately scale and simplicity are not mutually exclusive Big Data teaches you to build big data systems using an architecture designed specifically to capture and analyze web scale data This book presents the Lambda Architecture a scalable easy to understand approach that can be built and run by a small team You ll explore the theory of big data systems and how to implement them in practice In addition to discovering a general framework for processing big data you ll learn specific technologies like Hadoop Storm and NoSQL databases This book requires no previous exposure to large scale data analysis or NoSQL tools Familiarity with traditional databases is helpful What s Inside Introduction to big data systems Real time processing of web scale data Tools like Hadoop Cassandra and Storm Extensions to traditional database skills About the Authors Nathan Marz is the creator of Apache Storm and the originator of the Lambda Architecture for big data systems James Warren is an analytics architect with a background in machine learning and scientific computing Table of Contents A new paradigm for Big Data PART 1 BATCH LAYER Data model for Big Data Data model for Big Data Illustration Data storage on the batch layer Data storage on the batch layer Illustration Batch layer Batch layer Illustration An example batch layer Architecture and algorithms An example batch layer Implementation PART 2 SERVING LAYER Serving layer Serving layer Illustration PART 3 SPEED LAYER Realtime views Realtime views Illustration Queuing and stream processing Queuing and stream processing Illustration Micro batch stream processing Micro batch stream processing Illustration Lambda Architecture in depth

Big Data Nathan Warren, 2015 Big Data teaches you to build big data systems using an architecture that takes advantage of clustered hardware along with new tools designed specifically to capture and analyze web scale data It describes a scalable easy to understand approach to big data systems that can be built and run by a small team Following a realistic example this book guides readers through the theory of big data systems how to implement them in practice and how to deploy and operate them once they re built About the Book Web scale applications like social networks real time analytics or e commerce sites deal with a lot of data whose volume and velocity exceed the limits of traditional database systems These applications require architectures built around clusters of machines to store and process data of any size or

speed Fortunately scale and simplicity are not mutually exclusive Big Data teaches you to build big data systems using an architecture designed specifically to capture and analyze web scale data This book presents the Lambda Architecture a scalable easy to understand approach that can be built and run by a small team You ll explore the theory of big data systems and how to implement them in practice In addition to discovering a general framework for processing big data you ll learn specific technologies like Hadoop Storm and NoSQL databases This book requires no previous exposure to large scale data analysis or NoSQL tools Familiarity with traditional databases is helpful What s Inside Introduction to big data systems Real time processing of web scale data Tools like Hadoop Cassandra and Storm Extensions to traditional database skills About the Authors Nathan Marz is the creator of Apache Storm and the originator of the Lambda Architecture for big data systems James Warren is an analytics architect with a background in machine learning and scientific computing Big Data Maribel Yasmina Santos,Carlos Costa,2022-09-01 Big Data is a concept of major relevance in today s world sometimes highlighted as a key asset for productivity growth innovation and customer relationship whose popularity has increased considerably during the last years Areas like smart cities manufacturing retail finance software development environment digital media among others can benefit from the collection storage processing and analysis of Big Data leveraging unprecedented data driven workflows and considerably improved decision making processes The concept of a Big Data Warehouse BDW is emerging as either an augmentation or a replacement of the traditional Data Warehouse DW a concept that has a long history as one of the most valuable enterprise data assets Nevertheless research in Big Data Warehousing is still in its infancy lacking an integrated and validated approach for designing and implementing both the logical layer data models data flows and interoperability between components and the physical layer technological infrastructure of these complex systems This book addresses models and methods for designing and implementing Big Data Systems to support mixed and complex decision processes giving special attention to BDWs as a way of efficiently storing and processing batch or streaming data for structured or semi structured analytical problems *Big Data - BigData 2018* Francis Y. L. Chin,C. L. Philip Chen,Latifur Khan,Kisung Lee,Liang-Jie Zhang,2018-06-20 This volume constitutes the proceedings of the 7th International Conference on BIGDATA 2018 held as Part of SCF 2018 in Seattle WA USA in June 2018 The 22 full papers together with 10 short papers published in this volume were carefully reviewed and selected from 97 submissions They are organized in topical sections such as Data analysis data as a service services computing data conversion data storage data centers dataflow architectures data compression data exchange data modeling databases and data management *Web Services: Concepts, Methodologies, Tools, and Applications* Management Association, Information Resources,2018-12-07 Web service technologies are redefining the way that large and small companies are doing business and exchanging information Due to the critical need for furthering automation engagement and efficiency systems and workflows are becoming increasingly more web based *Web Services Concepts Methodologies Tools and Applications* is an innovative reference source that

examines relevant theoretical frameworks current practice guidelines industry standards and standardization and the latest empirical research findings in web services Highlighting a range of topics such as cloud computing quality of service and semantic web this multi volume book is designed for computer engineers IT specialists software designers professionals researchers and upper level students interested in web services architecture frameworks and security

Mastering Predictive Analytics with Python Joseph Babcock,2016-08-31 Exploit the power of data in your business by building advanced predictive modeling applications with Python About This Book Master open source Python tools to build sophisticated predictive models Learn to identify the right machine learning algorithm for your problem with this forward thinking guide Grasp the major methods of predictive modeling and move beyond the basics to a deeper level of understanding Who This Book Is For This book is designed for business analysts BI analysts data scientists or junior level data analysts who are ready to move from a conceptual understanding of advanced analytics to an expert in designing and building advanced analytics solutions using Python You re expected to have basic development experience with Python What You Will Learn Gain an insight into components and design decisions for an analytical application Master the use Python notebooks for exploratory data analysis and rapid prototyping Get to grips with applying regression classification clustering and deep learning algorithms Discover the advanced methods to analyze structured and unstructured data Find out how to deploy a machine learning model in a production environment Visualize the performance of models and the insights they produce Scale your solutions as your data grows using Python Ensure the robustness of your analytic applications by mastering the best practices of predictive analysis In Detail The volume diversity and speed of data available has never been greater Powerful machine learning methods can unlock the value in this information by finding complex relationships and unanticipated trends Using the Python programming language analysts can use these sophisticated methods to build scalable analytic applications to deliver insights that are of tremendous value to their organizations In *Mastering Predictive Analytics with Python* you will learn the process of turning raw data into powerful insights Through case studies and code examples using popular open source Python libraries this book illustrates the complete development process for analytic applications and how to quickly apply these methods to your own data to create robust and scalable prediction services Covering a wide range of algorithms for classification regression clustering as well as cutting edge techniques such as deep learning this book illustrates not only how these methods work but how to implement them in practice You will learn to choose the right approach for your problem and how to develop engaging visualizations to bring the insights of predictive modeling to life Style and approach This book emphasizes on explaining methods through example data and code showing you templates that you can quickly adapt to your own use cases It focuses on both a practical application of sophisticated algorithms and the intuitive understanding necessary to apply the correct method to the problem at hand Through visual examples it also demonstrates how to convey insights through insightful charts and reporting

Python: Advanced Predictive Analytics Joseph Babcock,Ashish

Kumar,2017-12-27 Gain practical insights by exploiting data in your business to build advanced predictive modeling applications About This Book A step by step guide to predictive modeling including lots of tips tricks and best practices Learn how to use popular predictive modeling algorithms such as Linear Regression Decision Trees Logistic Regression and Clustering Master open source Python tools to build sophisticated predictive models Who This Book Is For This book is designed for business analysts BI analysts data scientists or junior level data analysts who are ready to move on from a conceptual understanding of advanced analytics and become an expert in designing and building advanced analytics solutions using Python If you are familiar with coding in Python or some other programming statistical scripting language but have never used or read about predictive analytics algorithms this book will also help you What You Will Learn Understand the statistical and mathematical concepts behind predictive analytics algorithms and implement them using Python libraries Get to know various methods for importing cleaning sub setting merging joining concatenating exploring grouping and plotting data with pandas and NumPy Master the use of Python notebooks for exploratory data analysis and rapid prototyping Get to grips with applying regression classification clustering and deep learning algorithms Discover advanced methods to analyze structured and unstructured data Visualize the performance of models and the insights they produce Ensure the robustness of your analytic applications by mastering the best practices of predictive analysis In Detail Social Media and the Internet of Things have resulted in an avalanche of data Data is powerful but not in its raw form it needs to be processed and modeled and Python is one of the most robust tools out there to do so It has an array of packages for predictive modeling and a suite of IDEs to choose from Using the Python programming language analysts can use these sophisticated methods to build scalable analytic applications This book is your guide to getting started with predictive analytics using Python You ll balance both statistical and mathematical concepts and implement them in Python using libraries such as pandas scikit learn and NumPy Through case studies and code examples using popular open source Python libraries this book illustrates the complete development process for analytic applications Covering a wide range of algorithms for classification regression clustering as well as cutting edge techniques such as deep learning this book illustrates explains how these methods work You will learn to choose the right approach for your problem and how to develop engaging visualizations to bring to life the insights of predictive modeling Finally you will learn best practices in predictive modeling as well as the different applications of predictive modeling in the modern world The course provides you with highly practical content from the following Packt books 1 Learning Predictive Analytics with Python 2 Mastering Predictive Analytics with Python Style and approach This course aims to create a smooth learning path that will teach you how to effectively perform predictive analytics using Python Through this comprehensive course you ll learn the basics of predictive analytics and progress to predictive modeling in the modern world [Knowledge Management in the Development of Data-Intensive Systems](#) Ivan Mistrik,Matthias Galster,Bruce R. Maxim,Bedir Tekinerdogan,2021-06-15 Data intensive systems are software applications

that process and generate Big Data Data intensive systems support the use of large amounts of data strategically and efficiently to provide intelligence For example examining industrial sensor data or business process data can enhance production guide proactive improvements of development processes or optimize supply chain systems Designing data intensive software systems is difficult because distribution of knowledge across stakeholders creates a symmetry of ignorance because a shared vision of the future requires the development of new knowledge that extends and synthesizes existing knowledge Knowledge Management in the Development of Data Intensive Systems addresses new challenges arising from knowledge management in the development of data intensive software systems These challenges concern requirements architectural design detailed design implementation and maintenance The book covers the current state and future directions of knowledge management in development of data intensive software systems The book features both academic and industrial contributions which discuss the role software engineering can play for addressing challenges that confront developing maintaining and evolving systems data intensive software systems of cloud and mobile services and the scalability requirements they imply The book features software engineering approaches that can efficiently deal with data intensive systems as well as applications and use cases benefiting from data intensive systems Providing a comprehensive reference on the notion of data intensive systems from a technical and non technical perspective the book focuses uniquely on software engineering and knowledge management in the design and maintenance of data intensive systems The book covers constructing deploying and maintaining high quality software products and software engineering in and for dynamic and flexible environments This book provides a holistic guide for those who need to understand the impact of variability on all aspects of the software life cycle It leverages practical experience and evidence to look ahead at the challenges faced by organizations in a fast moving world with increasingly fast changing customer requirements and expectations

Solving Large Scale Learning Tasks. Challenges and Algorithms Stefan Michaelis,Nico Piatkowski,Marco Stolpe,2016-07-02 In celebration of Prof Morik s 60th birthday this Festschrift covers research areas that Prof Morik worked in and presents various researchers with whom she collaborated The 23 refereed articles in this Festschrift volume provide challenges and solutions from theoreticians and practitioners on data preprocessing modeling learning and evaluation Topics include data mining and machine learning algorithms feature selection and feature generation optimization as well as efficiency of energy and communication

Exploring Enterprise Service Bus in the Service-Oriented Architecture Paradigm Bhadoria, Robin Singh,Chaudhari, Narendra,Tomar, Geetam Singh,Singh, Shailendra,2017-02-14 Web browsing would not be what it is today without the use of Service Oriented Architecture SOA Although much has been written about SOA methodology this emerging platform is continuously under development Exploring Enterprise Service Bus in the Service Oriented Architecture Paradigm is a detailed reference source that examines current aspects and research methodologies that enable enterprise service bus to unify and connect services efficiently on a common platform Featuring relevant topics such as SOA reference

architecture grid computing applications complex event computing and java business integration this is an ideal resource for all practitioners academicians graduate students and researchers interested in the discoveries on the relationship that Service Oriented architecture and enterprise service bus share

Neue digitale Services für Kunden. Entwurf einer IoT-Referenzarchitektur für SaaS-Anwendungen auf Basis von Microservices Michael Bockheim, 2021-03-18

Masterarbeit aus dem Jahr 2020 im Fachbereich Informatik Wirtschaftsinformatik Note 1,0 Universität Duisburg Essen Fakultät für Wirtschaftswissenschaften Sprache Deutsch Abstract Im Rahmen dieser Arbeit wird eine neue konzeptionelle IoT Referenzarchitektur für SaaS Anwendungen entworfen die für die Entwicklung derartiger Plattformen verwendet werden kann Es werden dazu Anforderungen aus IoT Referenzarchitekturen und dem Thema SaaS in der Literatur abgeleitet sowie relevante Architekturansätze in Bezug auf die Anforderungen analysiert und Aspekte abgeleitet die diese Anforderungen unterstützen Basierend auf den Erkenntnissen wird eine neue Referenzarchitektur entworfen die sowohl diese Aspekte berücksichtigt und die Anforderungen erfüllt Da die Ableitung der Referenzarchitektur auf theoretischen Erkenntnissen basiert wird diese für einen konkreten Anwendungsfall ausgeprägt um die Übertragbarkeit in die Praxis zu evaluieren Unternehmen setzen zunehmend Internet of things IoT Projekte um Nach einer Studie von IDC hat sich die Zahl der umgesetzten IoT Projekte von 2018 auf 2019 verdoppelt Ein großer Teil der Unternehmen entwickelte die entsprechenden Lösungen dabei selbst 44 % Die größten Chancen beim Einsatz von IoT sehen die Unternehmen in der Senkung von Kosten und der Erschließung neuer Kundenpotenziale Zur Erschließung neuer Kundenpotenziale bieten Unternehmen neue digitale Services für Ihre Kunden an oder bauen neue Geschäftsmodelle auf die durch den Einsatz von IoT Geräten ermöglicht werden Die Herausforderung besteht in der Entwicklung digitaler Plattformen die ein breites Spektrum an technischem Know-how erfordern und es kosteneffizient ermöglichen den Service für viele Kunden bereitzustellen Die Umsetzung solcher Anwendungen erfolgt zunehmend in Microservice Architekturen die vor allem Flexibilität in der Entwicklung die Reduzierung von Abhängigkeiten und damit eine hohe Fehlertoleranz sowie eine gute Skalierbarkeit ermöglichen Im Markt werden sowohl verschiedene IoT Plattformen angeboten die Bausteine für die Entwicklung bieten als auch teils umfangreichere Referenzarchitekturen und Best Practices bereitgestellt Einen technologieunabhängigen konzeptionellen Bauplan für eine IoT Anwendung liefern diese allerdings in den meisten Fällen nicht da sie sich auf konkrete Technologien und Produkte der Anbieter fokussieren

Big Data Systems Jawwad Ahmed Shamsi, Muhammad Ali Khojaye, 2021-05-10 Big Data Systems encompass massive challenges related to data diversity storage mechanisms and requirements of massive computational power Further capabilities of big data systems also vary with respect to type of problems For instance distributed memory systems are not recommended for iterative algorithms Similarly variations in big data systems also exist related to consistency and fault tolerance The purpose of this book is to provide a detailed explanation of big data systems The book covers various topics including Networking Security Privacy Storage Computation Cloud Computing NoSQL and NewSQL

systems High Performance Computing and Deep Learning An illustrative and practical approach has been adopted in which theoretical topics have been aided by well explained programming and illustrative examples Key Features Introduces concepts and evolution of Big Data technology Illustrates examples for thorough understanding Contains programming examples for hands on development Explains a variety of topics including NoSQL Systems NewSQL systems Security Privacy Networking Cloud High Performance Computing and Deep Learning Exemplifies widely used big data technologies such as Hadoop and Spark Includes discussion on case studies and open issues Provides end of chapter questions for enhanced learning

Robust Data Engineering: Key Techniques for Planning and Building Scalable and Reliable Data Systems Deena Conway, In today's data driven world businesses and organizations rely heavily on robust data systems to gain insights make informed decisions and drive innovation This book serves as a comprehensive guide to understanding the core principles best practices and advanced techniques for planning and building scalable and reliable data systems From understanding fundamental data modeling concepts to exploring distributed systems and cloud based architectures this book covers a wide range of topics essential for data engineers of all levels Learn to design efficient data pipelines implement robust data quality checks and ensure data security and governance Explore real world case studies and practical examples that demonstrate how to overcome common data engineering challenges This book is an invaluable resource for aspiring and experienced data engineers software developers data analysts and anyone involved in building and maintaining data intensive applications Whether you're just starting your data engineering journey or looking to expand your knowledge and skills this book provides the foundational knowledge and practical guidance needed to excel in this rapidly evolving field Equip yourself with the tools and techniques to design build and maintain data systems that can handle the ever growing volumes of data and unlock the true potential of data driven insights

[The Big Data-Driven Business](#) Russell Glass, Sean Callahan, 2014-11-24 Get the expert perspective and practical advice on big data The Big Data Driven Business How to Use Big Data to Win Customers Beat Competitors and Boost Profits makes the case that big data is for real and more than just big hype The book uses real life examples from Nate Silver to Copernicus and Apple to Blackberry to demonstrate how the winners of the future will use big data to seek the truth Written by a marketing journalist and the CEO of a multi million dollar B2B marketing platform that reaches more than 90% of the U S business population this book is a comprehensive and accessible guide on how to win customers beat competitors and boost the bottom line with big data The marketplace has entered an era where the customer holds all the cards With unprecedented choice in both the consumer world and the B2B world it's imperative that businesses gain a greater understanding of their customers and prospects Big data is the key to this insight because it provides a comprehensive view of a company's customers who they are and who they may be tomorrow The Big Data Driven Business is a complete guide to the future of business as seen through the lens of big data with expert advice on real world applications Learn what big data is and how it will transform the enterprise Explore why

major corporations are betting their companies on marketing technology Read case studies of big data winners and losers Discover how to change privacy and security and remodel marketing Better information allows for better decisions better targeting and better reach Big data has become an indispensable tool for the most effective marketers in the business and it is becoming less of a competitive advantage and more like an industry standard Remaining relevant as the marketplace evolves requires a full understanding and application of big data and The Big Data Driven Business provides the practical guidance businesses need *Big Data Analytics in Agile Software Development* David Gerald,2021-07-04 Over the last decade Agile methods have changed the software development process in an unparalleled way As opposed to traditional plan driven models of software development e g waterfall model where processes are organized in a series of sequentially ordered stages Agile software development ASD entails collaborative development with swift and incremental iterations As a result adaptability to frequently changing requirements and a strong emphasis on delivering value to customers represent the crux of ASD and have driven its wide acceptance among software practitioners in the last years Furthermore this paradigm shift from plan driven software development processes to ASD accorded with social and technological advances Keywords Big Data analytics in Agile software development big data facebook big data baseball big data analysis for green computing concepts and applications big data big climb big data systems big data healthcare big data aws big data science big data mba big data a big data dragon tank big data a revolution that will transform big data a revolution that will transform how we live work and think big data algorithms big data analysis big data analytics big data and health analytics big data and social science big data architect big data architecture big data at work big data band big data big analytics big data big climb big data big design big data book big data dangerous big data demystified big data design big data does size matter big data driven business big data engineer big data engineering big data espa ol big data finance big data for beginners big data for social good big data frameworks big data fundamentals big data fundamentals concepts drivers techniques big data genomics big data glossary big data health analytics big data in education big data in finance big data in healthcare big data in practice big data integration big data interview big data lake big data management big data manning big data marketing big data marz big data mba big data mba driving business strategies with data science big data modeling big data on campus big data para ceos y directores de marketing big data platform big data policing big data principles and best practices big data profits success analytics big data project big data project management big data python big data questions and answers big data race big data real estate big data revolution big data science big data science in finance big data security big data small wars big data spanish big data spark big data system big data technologies for business big data textbook big data uncharted big data understanding how data powers big business big data using hadoop big data using hadoop and hive big data visualization big data with java big data with spark Big Data For Dummies Judith S. Hurwitz,Alan Nugent,Fern Halper,Marcia Kaufman,2013-04-02 Find the right big data solution for your business or organization Big data management is one of the

major challenges facing business industry and not for profit organizations Data sets such as customer transactions for a mega retailer weather patterns monitored by meteorologists or social network activity can quickly outpace the capacity of traditional data management tools If you need to develop or manage big data solutions you ll appreciate how these four experts define explain and guide you through this new and often confusing concept You ll learn what it is why it matters and how to choose and implement solutions that work Effectively managing big data is an issue of growing importance to businesses not for profit organizations government and IT professionals Authors are experts in information management big data and a variety of solutions Explains big data in detail and discusses how to select and implement a solution security concerns to consider data storage and presentation issues analytics and much more Provides essential information in a no nonsense easy to understand style that is empowering Big Data For Dummies cuts through the confusion and helps you take charge of big data solutions for your organization *Big Data Management* Peter Ghavami,2020-11-09 Data analytics is core to business and decision making The rapid increase in data volume velocity and variety offers both opportunities and challenges While open source solutions to store big data like Hadoop offer platforms for exploring value and insight from big data they were not originally developed with data security and governance in mind Big Data Management discusses numerous policies strategies and recipes for managing big data It addresses data security privacy controls and life cycle management offering modern principles and open source architectures for successful governance of big data The author has collected best practices from the world s leading organizations that have successfully implemented big data platforms The topics discussed cover the entire data management life cycle data quality data stewardship regulatory considerations data council architectural and operational models are presented for successful management of big data The book is a must read for data scientists data engineers and corporate leaders who are implementing big data platforms in their organizations

Big Data Rajkumar Buyya,Rodrigo N. Calheiros,Amir Vahid Dastjerdi,2016-06-07 Big Data Principles and Paradigms captures the state of the art research on the architectural aspects technologies and applications of Big Data The book identifies potential future directions and technologies that facilitate insight into numerous scientific business and consumer applications To help realize Big Data s full potential the book addresses numerous challenges offering the conceptual and technological solutions for tackling them These challenges include life cycle data management large scale storage flexible processing infrastructure data modeling scalable machine learning data analysis algorithms sampling techniques and privacy and ethical issues Covers computational platforms supporting Big Data applications Addresses key principles underlying Big Data computing Examines key developments supporting next generation Big Data platforms Explores the challenges in Big Data computing and ways to overcome them Contains expert contributors from both academia and industry *Big Data* Maribel Yasmina Santos,Carlos Costa,2020-03-30 Big Data is a concept of major relevance in today s world sometimes highlighted as a key asset for productivity growth innovation and customer relationship whose popularity has increased

considerably during the last years Areas like smart cities manufacturing retail finance software development environment digital media among others can benefit from the collection storage processing and analysis of Big Data leveraging unprecedented data driven workflows and considerably improved decision making processes The concept of a Big Data Warehouse BDW is emerging as either an augmentation or a replacement of the traditional Data Warehouse DW a concept that has a long history as one of the most valuable enterprise data assets Nevertheless research in Big Data Warehousing is still in its infancy lacking an integrated and validated approach for designing and implementing both the logical layer data models data flows and interoperability between components and the physical layer technological infrastructure of these complex systems This book addresses models and methods for designing and implementing Big Data Systems to support mixed and complex decision processes giving special attention to BDWs as a way of efficiently storing and processing batch or streaming data for structured or semi structured analytical problems

Data Science and Big Data Computing

Zaigham Mahmood, 2016-07-05 This illuminating text reference surveys the state of the art in data science and provides practical guidance on big data analytics Expert perspectives are provided by authoritative researchers and practitioners from around the world discussing research developments and emerging trends presenting case studies on helpful frameworks and innovative methodologies and suggesting best practices for efficient and effective data analytics Features reviews a framework for fast data applications a technique for complex event processing and agglomerative approaches for the partitioning of networks introduces a unified approach to data modeling and management and a distributed computing perspective on interfacing physical and cyber worlds presents techniques for machine learning for big data and identifying duplicate records in data repositories examines enabling technologies and tools for data mining proposes frameworks for data extraction and adaptive decision making and social media analysis

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