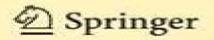Giuseppe Carenini · Gabriel Murray · Raymond Ng

Methods for Mining and Summarizing Text Conversations

Methods For Mining And Summarizing Text Conversations Raymond Ng

Foto Afrati,Rada Chirkova

Methods For Mining And Summarizing Text Conversations Raymond Ng:

Methods for Mining and Summarizing Text Conversations Giuseppe Carenini,Raymond Ng,Gabriel Murray,2022-06-01 Due to the Internet Revolution human conversational data in written forms are accumulating at a phenomenal rate At the same time improvements in speech technology enable many spoken conversations to be transcribed Individuals and organizations engage in email exchanges face to face meetings blogging texting and other social media activities The advances in natural language processing provide ample opportunities for these informal documents to be analyzed and mined thus creating numerous new and valuable applications This book presents a set of computational methods to extract information from conversational data and to provide natural language summaries of the data The book begins with an overview of basic concepts such as the differences between extractive and abstractive summaries and metrics for evaluating the effectiveness of summarization and various extraction tasks It also describes some of the benchmark corpora used in the literature The book introduces extraction and mining methods for performing subjectivity and sentiment detection topic segmentation and modeling and the extraction of conversational structure It also describes frameworks for conducting dialogue act recognition decision and action item detection and extraction of thread structure There is a specific focus on performing all these tasks on conversational data such as meeting transcripts which exemplify synchronous conversations and emails which exemplify asynchronous conversations Very recent approaches to deal with blogs discussion forums and microblogs e g Twitter are also discussed The second half of this book focuses on natural language summarization of conversational data It gives an overview of several extractive and abstractive summarizers developed for emails meetings blogs and forums It also describes attempts for building multi modal summarizers Last but not least the book concludes with thoughts on topics for further development Table of Contents Introduction Background Corpora and Evaluation Methods Mining Text Conversations Summarizing Text Conversations Conclusions Final Thoughts *Perspectives on Business Intelligence* Raymond T. Ng,Patricia C. Arocena,Denilson Barbosa,Giuseppe Carenini,Luiz Gomes,Stephan Jou,Anthony Leung,Evangelos Milios,Renée J. Miller,John Mylopoulos,Rachel A Pottinger,Frank Tompa,Eric Yu,2022-05-31 In the 1980s traditional Business Intelligence BI systems focused on the delivery of reports that describe the state of business activities in the past such as for questions like How did our sales perform during the last quarter A decade later there was a shift to more interactive content that presented how the business was performing at the present time answering questions like How are we doing right now Today the focus of BI users are looking into the future Given what I did before and how I am currently doing this quarter how will I do next quarter Furthermore fuelled by the demands of Big Data BI systems are going through a time of incredible change Predictive analytics high volume data unstructured data social data mobile consumable analytics and data visualization are all examples of demands and capabilities that have become critical within just the past few years and are growing at an unprecedented pace This book introduces research problems and solutions on various aspects central to

next generation BI systems It begins with a chapter on an industry perspective on how BI has evolved and discusses how game changing trends have drastically reshaped the landscape of BI One of the game changers is the shift toward the consumerization of BI tools As a result for BI tools to be successfully used by business users rather than IT departments the tools need a business model rather than a data model One chapter of the book surveys four different types of business modeling However even with the existence of a business model for users to express queries the data that can meet the needs are still captured within a data model The next chapter on vivification addresses the problem of closing the gap which is often significant between the business and the data models Moreover Big Data forces BI systems to integrate and consolidate multiple and often wildly different data sources One chapter gives an overview of several integration architectures for dealing with the challenges that need to be overcome While the book so far focuses on the usual structured relational data the remaining chapters turn to unstructured data an ever increasing and important component of Big Data One chapter on information extraction describes methods for dealing with the extraction of relations from free text and the web Finally BI users need tools to visualize and interpret new and complex types of information in a way that is compelling intuitive but accurate The last chapter gives an overview of information visualization for decision support and text **Data Exploration Using Example-Based Methods** Matteo Lissandrini,Davide Mottin,Themis Palpanas,Yannis Velegrakis,2022-06-01 Data usually comes in a plethora of formats and dimensions rendering the exploration and information extraction processes challenging Thus being able to perform exploratory analyses in the data with the intent of having an immediate glimpse on some of the data properties is becoming crucial Exploratory analyses should be simple enough to avoid complicate declarative languages such as SQL and mechanisms and at the same time retain the flexibility and expressiveness of such languages Recently we have witnessed a rediscovery of the so called example based methods in which the user or the analyst circumvents query languages by using examples as input An example is a representative of the intended results or in other words an item from the result set Example based methods exploit inherent characteristics of the data to infer the results that the user has in mind but may not able to easily express They can be useful in cases where a user is looking for information in an unfamiliar dataset when the task is particularly challenging like finding duplicate items or simply when they are exploring the data In this book we present an excursus over the main methods for exploratory analysis with a particular focus on example based methods We show how that different data types require different techniques and present algorithms that are specifically designed for relational textual and graph data The book presents also the challenges and the new frontiers of machine learning in online settings which recently attracted the attention of the database community The lecture concludes with a vision for further research and applications in this area *Full-Text (Substring) Indexes in External Memory* Marina Barsky,Alex Thomo,Ulrike Stege,2022-05-31 Nowadays textual databases are among the most rapidly growing collections of data Some of these collections contain a new type of data that differs from classical numerical or textual data These are long

sequences of symbols not divided into well separated small tokens words The most prominent among such collections are databases of biological sequences which are experiencing today an unprecedented growth rate Starting in 2008 the 1000 Genomes Project has been launched with the ultimate goal of collecting sequences of additional 1 500 Human genomes 500 each of European African and East Asian origin This will produce an extensive catalog of Human genetic variations The size of just the raw sequences in this catalog would be about 5 terabytes Querying strings without well separated tokens poses a different set of challenges typically addressed by building full text indexes which provide effective structures to index all the substrings of the given strings Since full text indexes occupy more space than the raw data it is often necessary to use disk space for their construction However until recently the construction of full text indexes in secondary storage was considered impractical due to excessive I O costs Despite this algorithms developed in the last decade demonstrated that efficient external construction of full text indexes is indeed possible This book is about large scale construction and usage of full text indexes We focus mainly on suffix trees and show efficient algorithms that can convert suffix trees to other kinds of full text indexes and vice versa There are four parts in this book They are a mix of string searching theory with the reality of external memory constraints The first part introduces general concepts of full text indexes and shows the relationships between them The second part presents the first series of external memory construction algorithms that can handle the construction of full text indexes for moderately large strings in the order of few gigabytes The third part presents algorithms that scale for very large strings The final part examines queries that can be facilitated by disk resident full text indexes Table of Contents Structures for Indexing Substrings External Construction of Suffix Trees Scaling Up When the Input Exceeds the Main Memory Queries for Disk based Indexes Conclusions and Open Problems *P2P Techniques for Decentralized Applications* Esther Pacitti,Reza Akbaranian,Manal El-Dick,2022-06-01 As an alternative to traditional client server systems Peer to Peer P2P systems provide major advantages in terms of scalability autonomy and dynamic behavior of peers and decentralization of control Thus they are well suited for large scale data sharing in distributed environments Most of the existing P2P approaches for data sharing rely on either structured networks e g DHTs for efficient indexing or unstructured networks for ease of deployment or some combination However these approaches have some limitations such as lack of freedom for data placement in DHTs and high latency and high network traffic in unstructured networks To address these limitations gossip protocols which are easy to deploy and scale well can be exploited In this book we will give an overview of these different P2P techniques and architectures discuss their trade offs and illustrate their use for decentralizing several large scale data sharing applications Table of Contents P2P Overlays Query Routing and Gossiping Content Distribution in P2P Systems Recommendation Systems Top k Query Processing in P2P Systems **Database Repairing and Consistent Query Answering** Leopoldo Bertossi,2022-05-31 Integrity constraints are semantic conditions that a database should satisfy in order to be an appropriate model of external reality In practice and for many reasons a database may not satisfy those

integrity constraints and for that reason it is said to be inconsistent However and most likely a large portion of the database is still semantically correct in a sense that has to be made precise After having provided a formal characterization of consistent data in an inconsistent database the natural problem emerges of extracting that semantically correct data as query answers The consistent data in an inconsistent database is usually characterized as the data that persists across all the database instances that are consistent and minimally differ from the inconsistent instance Those are the so called repairs of the database In particular the consistent answers to a query posed to the inconsistent database are those answers that can be simultaneously obtained from all the database repairs As expected the notion of repair requires an adequate notion of distance that allows for the comparison of databases with respect to how much they differ from the inconsistent instance On this basis the minimality condition on repairs can be properly formulated In this monograph we present and discuss these fundamental concepts different repair semantics algorithms for computing consistent answers to queries and also complexity theoretic results related to the computation of repairs and doing consistent query answering Table of Contents Introduction The Notions of Repair and Consistent Answer Tractable CQA and Query Rewriting Logically Specifying Repairs Decision Problems in CQA Complexity and Algorithms Repairs and Data Cleaning   **Managing Event Information** Amarnath Gupta,Ramesh Jain,2022-05-31 With the proliferation of citizen reporting smart mobile devices and social media an increasing number of people are beginning to generate information about events they observe and participate in A significant fraction of this information contains multimedia data to share the experience with their audience A systematic information modeling and management framework is necessary to capture this widely heterogeneous schemaless potentially humongous information produced by many different people This book is an attempt to examine the modeling storage querying and applications of such an event management system in a holistic manner It uses a semantic web style graph based view of events and shows how this event model together with its query facility can be used toward emerging applications like semi automated storytelling Table of Contents Introduction Event Data Models Implementing an Event Data Model Querying Events Storytelling with Events An Emerging Application Conclusion   Data Management in Machine Learning Systems Matthias Boehm,Arun Kumar,Jun Yang,2022-05-31 Large scale data analytics using machine learning ML underpins many modern data driven applications ML systems provide means of specifying and executing these ML workloads in an efficient and scalable manner Data management is at the heart of many ML systems due to data driven application characteristics data centric workload characteristics and system architectures inspired by classical data management techniques In this book we follow this data centric view of ML systems and aim to provide a comprehensive overview of data management in ML systems for the end to end data science or ML lifecycle We review multiple interconnected lines of work 1 ML support in database DB systems 2 DB inspired ML systems and 3 ML lifecycle systems Covered topics include in database analytics via query generation and user defined functions factorized and statistical relational learning optimizing compilers for ML

workloads execution strategies and hardware accelerators data access methods such as compression partitioning and indexing resource elasticity and cloud markets as well as systems for data preparation for ML model selection model management model debugging and model serving Given the rapidly evolving field we strive for a balance between an up to date survey of ML systems an overview of the underlying concepts and techniques as well as pointers to open research questions Hence this book might serve as a starting point for both systems researchers and developers *Semantics Empowered Web 3.0* Amit Sheth,Krishnaprasad Thirunarayan,2022-05-31 After the traditional document centric Web 1 0 and user generated content focused Web 2 0 Web 3 0 has become a repository of an ever growing variety of Web resources that include data and services associated with enterprises social networks sensors cloud as well as mobile and other devices that constitute the Internet of Things These pose unprecedented challenges in terms of heterogeneity variety scale volume and continuous changes velocity as well as present corresponding opportunities if they can be exploited Just as semantics has played a critical role in dealing with data heterogeneity in the past to provide interoperability and integration it is playing an even more critical role in dealing with the challenges and helping users and applications exploit all forms of Web 3 0 data This book presents a unified approach to harness and exploit all forms of contemporary Web resources using the core principles of ability to associate meaning with data through conceptual or domain models and semantic descriptions including annotations and through advanced semantic techniques for search integration and analysis It discusses the use of Semantic Web standards and techniques when appropriate but also advocates the use of lighter weight easier to use and more scalable options when they are more suitable The authors extensive experience spanning research and prototypes to development of operational applications and commercial technologies and products guide the treatment of the material Table of Contents Role of Semantics and Metadata Types and Models of Semantics Annotation Adding Semantics to Data Semantics for Enterprise Data Semantics for Services Semantics for Sensor Data Semantics for Social Data Semantics for Cloud Computing Semantics for Advanced Applications **Query Processing over Uncertain Databases** Lei Chen,Xiang Lian,2022-05-31 Due to measurement errors transmission lost or injected noise for privacy protection uncertainty exists in the data of many real applications However query processing techniques for deterministic data cannot be directly applied to uncertain data because they do not have mechanisms to handle data uncertainty Therefore efficient and effective manipulation of uncertain data is a practical yet challenging research topic In this book we start from the data models for imprecise and uncertain data move on to defining different semantics for queries on uncertain data and finally discuss the advanced query processing techniques for various probabilistic queries in uncertain databases The book serves as a comprehensive guideline for query processing over uncertain databases Table of Contents Introduction Uncertain Data Models Spatial Query Semantics over Uncertain Data Models Spatial Query Processing over Uncertain Databases Conclusion **Veracity of Data** Laure Berti-Équille,Javier Borge-Holthoefer,2022-05-31 On the Web a massive amount of user

generated content is available through various channels e g texts tweets Web tables databases multimedia sharing platforms etc Conflicting information rumors erroneous and fake content can be easily spread across multiple sources making it hard to distinguish between what is true and what is not This book gives an overview of fundamental issues and recent contributions for ascertaining the veracity of data in the era of Big Data The text is organized into six chapters focusing on structured data extracted from texts Chapter 1 introduces the problem of ascertaining the veracity of data in a multi source and evolving context Issues related to information extraction are presented in Chapter 2 Current truth discovery computation algorithms are presented in details in Chapter 3 It is followed by practical techniques for evaluating data source reputation and authoritativeness in Chapter 4 The theoretical foundations and various approaches for modeling diffusion phenomenon of misinformation spreading in networked systems are studied in Chapter 5 Finally truth discovery computation from extracted data in a dynamic context of misinformation propagation raises interesting challenges that are explored in Chapter 6 This text is intended for a seminar course at the graduate level It is also to serve as a useful resource for researchers and practitioners who are interested in the study of fact checking truth discovery or rumor spreading **The Four Generations of Entity Resolution** George Papadakis,Ekaterini Ioannou,Emanouil Thanos,Themis Palpanas,2022-06-01 Entity Resolution ER lies at the core of data integration and cleaning and thus a bulk of the research examines ways for improving its effectiveness and time efficiency The initial ER methods primarily target Veracity in the context of structured relational data that are described by a schema of well known quality and meaning To achieve high effectiveness they leverage schema expert and or external knowledge Part of these methods are extended to address Volume processing large datasets through multi core or massive parallelization approaches such as the MapReduce paradigm However these early schema based approaches are inapplicable to Web Data which abound in voluminous noisy semi structured and highly heterogeneous information To address the additional challenge of Variety recent works on ER adopt a novel loosely schema aware functionality that emphasizes scalability and robustness to noise Another line of present research focuses on the additional challenge of Velocity aiming to process data collections of a continuously increasing volume The latest works though take advantage of the significant breakthroughs in Deep Learning and Crowdsourcing incorporating external knowledge to enhance the existing words to a significant extent This synthesis lecture organizes ER methods into four generations based on the challenges posed by these four Vs For each generation we outline the corresponding ER workflow discuss the state of the art methods per workflow step and present current research directions The discussion of these methods takes into account a historical perspective explaining the evolution of the methods over time along with their similarities and differences The lecture also discusses the available ER tools and benchmark datasets that allow expert as well as novice users to make use of the available solutions *Generating Plans from Proofs* Michael Benedikt,Julien Leblay,Balder ten Cate,Efthymia Tsamoura,2016-03-15 Query reformulation refers to a process of translating a source query a request for

information in some high level logic based language into a target plan that abides by certain interface restrictions Many practical problems in data management can be seen as instances of the reformulation problem For example the problem of translating an SQL query written over a set of base tables into another query written over a set of views the problem of implementing a query via translating to a program calling a set of database APIs the problem of implementing a query using a collection of web services In this book we approach query reformulation in a very general setting that encompasses all the problems above by relating it to a line of research within mathematical logic For many decades logicians have looked at the problem of converting implicit definitions into explicit definitions using an approach known as interpolation We will review the theory of interpolation and explain its close connection with query reformulation We will give a detailed look at how the interpolation based approach is used to generate translations between logic based queries over different vocabularies and also how it can be used to go from logic based queries to programs   *Non-Volatile Memory Database Management Systems* Joy Arulraj,Andrew Pavlo,2022-06-01 This book explores the implications of non volatile memory NVM for database management systems DBMSs The advent of NVM will fundamentally change the dichotomy between volatile memory and durable storage in DBMSs These new NVM devices are almost as fast as volatile memory but all writes to them are persistent even after power loss Existing DBMSs are unable to take full advantage of this technology because their internal architectures are predicated on the assumption that memory is volatile With NVM many of the components of legacy DBMSs are unnecessary and will degrade the performance of data intensive applications We present the design and implementation of DBMS architectures that are explicitly tailored for NVM The book focuses on three aspects of a DBMS 1 logging and recovery 2 storage and buffer management and 3 indexing First we present a logging and recovery protocol that enables the DBMS to support near instantaneous recovery Second we propose astorage engine architecture and buffer management policy that leverages the durability and byte addressability properties of NVM to reduce data duplication and data migration Third the book presents the design of a range index tailored for NVM that is latch free yet simple to implement All together the work described in this book illustrates that rethinking the fundamental algorithms and data structures employed in a DBMS for NVM improves performance and availability reduces operational cost and simplifies software development

Answering Queries Using Views, Second Edition Foto Afrati,Rada Chirkova,2022-05-31 The topic of using views to answer queries has been popular for a few decades now as it cuts across domains such as query optimization information integration data warehousing website design and recently database as a service and data placement in cloud systems This book assembles foundational work on answering queries using views in a self contained manner with an effort to choose material that constitutes the backbone of the research It presents efficient algorithms and covers the following problems query containment rewriting queries using views in various logical languages equivalent rewritings and maximally contained rewritings and computing certain answers in the data integration and data exchange settings Query languages that are

considered are fragments of SQL in particular select project join queries also called conjunctive queries with or without arithmetic comparisons or negation and aggregate SQL queries This second edition includes twonew chapters that refer to tree like data and respective query languages Chapter 8 presents the data model for XML documents and the XPath query language and Chapter 9 provides a theoretical presentation of tree like data model and query language where the tuples of a relation share a tree structured schema for that relation and the query language is a dialect of SQL with evaluation techniques appropriately modified to fit the richer schema **Data Management in the Cloud** Divyakant Agrawal,Sudipto Das,Amr El Abbadi,2022-05-31 Cloud computing has emerged as a successful paradigm of service oriented computing and has revolutionized the way computing infrastructure is used This success has seen a proliferation in the number of applications that are being deployed in various cloud platforms There has also been an increase in the scale of the data generated as well as consumed by such applications Scalable database management systems form a critical part of the cloud infrastructure The attempt to address the challenges posed by the management of big data has led to a plethora of systems This book aims to clarify some of the important concepts in the design space of scalable data management in cloud computing infrastructures Some of the questions that this book aims to answer are the appropriate systems for a specific set of application requirements the research challenges in data management for the cloud and what is novel in the cloud for database researchers We also aim to address one basic question whether cloud computing poses new challenges in scalable data management or it is just a reincarnation of old problems We provide a comprehensive background study of state of the art systems for scalable data management and analysis We also identify important aspects in the design of different systems and the applicability and scope of these systems A thorough understanding of current solutions and a precise characterization of the design space are essential for clearing the cloudy skies of data management and ensuring the success of DBMSs in the cloud thus emulating the success enjoyed by relational databases in traditional enterprise settings Table of Contents Introduction Distributed Data Management Cloud Data Management Early Trends Transactions on Co located Data Transactions on Distributed Data Multi tenant Database Systems Concluding Remarks **Scalable Processing of Spatial-Keyword Queries** Ahmed R. Mahmood,Walid G. Aref,2022-05-31 Text data that is associated with location data has become ubiquitous A tweet is an example of this type of data where the text in a tweet is associated with the location where the tweet has been issued We use the term spatial keyword data to refer to this type of data Spatial keyword data is being generated at massive scale Almost all online transactions have an associated spatial trace The spatial trace is derived from GPS coordinates IP addresses or cell phone tower locations Hundreds of millions or even billions of spatial keyword objects are being generated daily Spatial keyword data has numerous applications that require efficient processing and management of massive amounts of spatial keyword data This book starts by overviewing some important applications of spatial keyword data and demonstrates the scale at which spatial keyword data is being generated Then it formalizes and classifies the

various types of queries that execute over spatial keyword data Next it discusses important and desirable properties of spatial keyword query languages that are needed to express queries over spatial keyword data As will be illustrated existing spatial keyword query languages vary in the types of spatial keyword queries that they can support There are many systems that process spatial keyword queries Systems differ from each other in various aspects e g whether the system is batch oriented or stream based and whether the system is centralized or distributed Moreover spatial keyword systems vary in the types of queries that they support Finally systems vary in the types of indexing techniques that they adopt This book provides an overview of the main spatial keyword data management systems SKDMSs and classifies them according to their features Moreover the book describes the main approaches adopted when indexing spatial keyword data in the centralized and distributed settings Several case studies of SKDMSs are presentedalong with the applications and query types that these SKDMSs are targeted for and the indexing techniques they utilize for processing their queries Optimizing the performance and the query processing of SKDMSs still has many research challenges and open problems The book concludes with a discussion about several important and open research problems in the domain of scalable spatial keyword processing

Fault-Tolerant Distributed Transactions on Blockchain Suyash Gupta,Jelle Hellings,Mohammad Sadoghi,2022-06-01 Since the introduction of Bitcoin the first widespread application driven by blockchain the interest of the public and private sectors in blockchain has skyrocketed In recent years blockchain based fabrics have been used to address challenges in diverse fields such as trade food production property rights identity management aid delivery health care and fraud prevention This widespread interest follows from fundamental concepts on which blockchains are built that together embed the notion of trust upon which blockchains are built 1 Blockchains provide data transparancy Data in a blockchain is stored in the form of a ledger which contains an ordered history of all the transactions This facilitates oversight and auditing 2 Blockchains ensure data integrity by using strong cryptographic primitives This guarantees that transactions accepted by the blockchain are authenticated by its issuer are immutable and cannot be repudiated by the issuer This ensures accountability 3 Blockchains are decentralized democratic and resilient They use consensus based replication to decentralize the ledger among many independent participants Thus it can operate completely decentralized and does not require trust in a single authority Additions to the chain are performed by consensus in which all participants have a democratic voice in maintaining the integrity of the blockchain Due to the usage of replication and consensus blockchains are also highly resilient to malicious attacks even when a significant portion of the participants are malicious It further increases the opportunity for fairness and equity through democratization These fundamental concepts and the technologies behind them a generic ledger based data model cryptographically ensured data integrity and consensus based replication prove to be a powerful and inspiring combination a catalyst to promote computational trust In this book we present an in depth study of blockchain unraveling its revolutionary promise to instill computational trust in society all carefully tailored to a broad audience

including students researchers and practitioners We offer a comprehensive overview of theoretical limitations and practical usability of consensus protocols while examining the diverse landscape of how blockchains are manifested in their permissioned and permissionless forms   Foundations of Data Quality Management Wenfei Fan,Floris Geerts,2022-05-31 Data quality is one of the most important problems in data management A database system typically aims to support the creation maintenance and use of large amount of data focusing on the quantity of data However real life data are often dirty inconsistent duplicated inaccurate incomplete or stale Dirty data in a database routinely generate misleading or biased analytical results and decisions and lead to loss of revenues credibility and customers With this comes the need for data quality management In contrast to traditional data management tasks data quality management enables the detection and correction of errors in the data syntactic or semantic in order to improve the quality of the data and hence add value to business processes While data quality has been a longstanding problem for decades the prevalent use of the Web has increased the risks on an unprecedented scale of creating and propagating dirty data This monograph gives an overview of fundamental issues underlying central aspects of data quality namely data consistency data deduplication data accuracy data currency and information completeness We promote a uniform logical framework for dealing with these issues based on data quality rules The text is organized into seven chapters focusing on relational data Chapter One introduces data quality issues A conditional dependency theory is developed in Chapter Two for capturing data inconsistencies It is followed by practical techniques in Chapter 2b for discovering conditional dependencies and for detecting inconsistencies and repairing data based on conditional dependencies Matching dependencies are introduced in Chapter Three as matching rules for data deduplication A theory of relative information completeness is studied in Chapter Four revising the classical Closed World Assumption and the Open World Assumption to characterize incomplete information in the real world A data currency model is presented in Chapter Five to identify the current values of entities in a database and to answer queries with the current values in the absence of reliable timestamps Finally interactions between these data quality issues are explored in Chapter Six Important theoretical results and practical algorithms are covered but formal proofs are omitted The bibliographical notes contain pointers to papers in which the results were presented and proven as well as references to materials for further reading This text is intended for a seminar course at the graduate level It is also to serve as a useful resource for researchers and practitioners who are interested in the study of data quality The fundamental research on data quality draws on several areas including mathematical logic computational complexity and database theory It has raised as many questions as it has answered and is a rich source of questions and vitality Table of Contents Data Quality An Overview Conditional Dependencies Cleaning Data with Conditional Dependencies Data Deduplication Information Completeness Data Currency Interactions between Data Quality Issues   *Big Data Integration* Xin Luna Dong,Divesh Srivastava,2022-05-31 The big data era is upon us data are being generated analyzed and used at an unprecedented scale and data driven decision making is

sweeping through all aspects of society Since the value of data explodes when it can be linked and fused with other data addressing the big data integration BDI challenge is critical to realizing the promise of big data BDI differs from traditional data integration along the dimensions of volume velocity variety and veracity First not only can data sources contain a huge volume of data but also the number of data sources is now in the millions Second because of the rate at which newly collected data are made available many of the data sources are very dynamic and the number of data sources is also rapidly exploding Third data sources are extremely heterogeneous in their structure and content exhibiting considerable variety even for substantially similar entities Fourth the data sources are of widely differing qualities with significant differences in the coverage accuracy and timeliness of data provided This book explores the progress that has been made by the data integration community on the topics of schema alignment record linkage and data fusion in addressing these novel challenges faced by big data integration Each of these topics is covered in a systematic way first starting with a quick tour of the topic in the context of traditional data integration followed by a detailed example driven exposition of recent innovative techniques that have been proposed to address the BDI challenges of volume velocity variety and veracity Finally it presents merging topics and opportunities that are specific to BDI identifying promising directions for the data integration community

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Methods For Mining And Summarizing Text Conversations Raymond Ng Introduction

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