Information and Influence Propagation in Social Networks

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Information and Influence Propagation in Social Networks Wei Chen,Carlos Castillo,Laks V.S. Lakshmanan,2013-10-01 Research on social networks has exploded over the last decade To a large extent this has been fueled by the spectacular growth of social media and online social networking sites which continue growing at a very fast pace as well as by the increasing availability of very large social network datasets for purposes of research A rich body of this research has been devoted to the analysis of the propagation of information influence innovations infections practices and customs through networks Can we build models to explain the way these propagations occur How can we validate our models against any available real datasets consisting of a social network and propagation traces that occurred in the past These are just some questions studied by researchers in this area Information propagation models find applications in viral marketing outbreak detection finding key blog posts to read in order to catch important stories finding leaders or trendsetters information feed ranking etc A number of algorithmic problems arising in these applications have been abstracted and studied extensively by researchers under the garb of influence maximization This book starts with a detailed description of well established diffusion models including the independent cascade model and the linear threshold model that have been successful at explaining propagation phenomena We describe their properties as well as numerous extensions to them introducing aspects such as competition budget and time criticality among many others We delve deep into the key problem of influence maximization which selects key individuals to activate in order to influence a large fraction of a network Influence maximization in classic diffusion models including both the independent cascade and the linear threshold models is computationally intractable more precisely P hard and we describe several approximation algorithms and scalable heuristics that have been proposed in the literature Finally we also deal with key issues that need to be tackled in order to turn this research into practice such as learning the strength with which individuals in a network influence each other as well as the practical aspects of this research including the availability of datasets and software tools for facilitating research We conclude with a discussion of various research problems that remain open both from a technical perspective and from the viewpoint of transferring the results of research into industry strength applications **Information and Influence Propagation in Social Networks** Wei Chen,Carlos Castillo,Laks V.S. Lakshmanan,2022-05-31 Research on social networks has exploded over the last decade To a large extent this has been fueled by the spectacular growth of social media and online social networking sites which continue growing at a very fast pace as well as by the increasing availability of very large social network datasets for purposes of research A rich body of this research has been devoted to the analysis of the propagation of information influence innovations infections practices and customs through networks Can we build models to explain the way these propagations occur How can we validate our models against any available real datasets consisting of a social network and propagation traces that occurred in the past These are just some questions studied by researchers in this area

Information propagation models find applications in viral marketing outbreak detection finding key blog posts to read in order to catch important stories finding leaders or trendsetters information feed ranking etc A number of algorithmic problems arising in these applications have been abstracted and studied extensively by researchers under the garb of influence maximization This book starts with a detailed description of well established diffusion models including the independent cascade model and the linear threshold model that have been successful at explaining propagation phenomena We describe their properties as well as numerous extensions to them introducing aspects such as competition budget and time criticality among many others We delve deep into the key problem of influence maximization which selects key individuals to activate in order to influence a large fraction of a network Influence maximization in classic diffusion models including both the independent cascade and the linear threshold models is computationally intractable more precisely P hard and we describe several approximation algorithms and scalable heuristics that have been proposed in the literature Finally we also deal with key issues that need to be tackled in order to turn this research into practice such as learning the strength with which individuals in a network influence each other as well as the practical aspects of this research including the availability of datasets and software tools for facilitating research We conclude with a discussion of various research problems that remain open both from a technical perspective and from the viewpoint of transferring the results of research into industry strength applications **The SAGE Encyclopedia of Economics and Society** Frederick F. Wherry,Juliet B. Schor, Consulting Editor,2015-09-01 Economics is the nexus and engine that runs society affecting societal well being raising standards of living when economies prosper or lowering citizens through class structures when economies perform poorly Our society only has to witness the booms and busts of the past decade to see how economics profoundly affects the cores of societies around the world From a household budget to international trade economics ranges from the micro to the macro level It relates to a breadth of social science disciplines that help describe the content of the proposed encyclopedia which will explicitly approach economics through varied disciplinary lenses Although there are encyclopedias of covering economics especially classic economic theory and history the SAGE Encyclopedia of Economics and Society emphasizes the contemporary world contemporary issues and society Features 4 volumes with approximately 800 signed articles ranging from 1 000 to 5 000 words each are presented in a choice of print or electronic editions Organized A to Z with a thematic Reader s Guide in the front matter groups related entries Articles conclude with References Future Readings to guide students to the next step on their research journeys Cross references between and among articles combine with a thorough Index and the Reader s Guide to enhance search and browse in the electronic version Pedagogical elements include a Chronology of Economics and Society Resource Guide and Glossary This academic multi author reference work will serve as a general non technical resource for students and researchers within social science programs who seek to better understand economics through a contemporary lens **Transaction Processing on Modern Hardware** Mohammad Sadoghi,Spyros

Blanas,2022-05-31 The last decade has brought groundbreaking developments in transaction processing This resurgence of an otherwise mature research area has spurred from the diminishing cost per GB of DRAM that allows many transaction processing workloads to be entirely memory resident This shift demanded a pause to fundamentally rethink the architecture of database systems The data storage lexicon has now expanded beyond spinning disks and RAID levels to include the cache hierarchy memory consistency models cache coherence and write invalidation costs NUMA regions and coherence domains New memory technologies promise fast non volatile storage and expose unchartered trade offs for transactional durability such as exploiting byte addressable hot and cold storage through persistent programming that promotes simpler recovery protocols In the meantime the plateauing single threaded processor performance has brought massive concurrency within a single node first in the form of multi core andnow with many core and heterogeneous processors The exciting possibility to reshape the storage transaction logging and recovery layers of next generation systems on emerging hardware have prompted the database research community to vigorously debate the trade offs between specialized kernels that narrowly focus on transaction processing performance vs designs that permit transactionally consistent data accesses from decision support and analytical workloads In this book we aim to classify and distill the new body of work on transaction processing that has surfaced in the last decade to navigate researchers and practitioners through this intricate research subject

Instant Recovery with Write-Ahead Logging Goetz Graefe,Wey Guy,Caetano Sauer,2022-05-31 Traditional theory and practice of write ahead logging and of database recovery focus on three failure classes transaction failures typically due to deadlocks resolved by transaction rollback system failures typically power or software faults resolved by restart with log analysis redo and undo phases and media failures typically hardware faults resolved by restore operations that combine multiple types of backups and log replay The recent addition of single page failures and single page recovery has opened new opportunities far beyond the original aim of immediate lossless repair of single page wear out in novel or traditional storage hardware In the contexts of system and media failures efficient single page recovery enables on demand incremental redo and undo as part of system restart or media restore operations This can give the illusion of practically instantaneous restart and restore instant restart permits processing new queries and updates seconds after system reboot and instant restore permits resuming queries and updates on empty replacement media as if those were already fully recovered In the context of node and network failures instant restart and instant restore combine to enable practically instant failover from a failing database node to one holding merely an out of date backup and a log archive yet without loss of data updates or transactional integrity In addition to these instant recovery techniques the discussion introduces self repairing indexes and much faster offline restore operations which impose no slowdown in backup operations and hardly any slowdown in log archiving operations The new restore techniques also render differential and incremental backups obsolete complete backup commands on a database server practically instantly and even permit taking full up to date backups without imposing any

load on the database server Compared to the first version of this book this second edition adds sections on applications of single page repair instant restart single pass restore and instant restore Moreover it adds sections on instant failover among nodes in a cluster applications of instant failover recovery for file systems and data files and the performance of instant restart and instant restore **Databases on Modern Hardware** Anastasia Ailamaki,Erietta Liarou,Pınar Tözün,Danica Porobic,Iraklis Psaroudakis,2022-06-01 Data management systems enable various influential applications from high performance online services e g social networks like Twitter and Facebook or financial markets to big data analytics e g scientific exploration sensor networks business intelligence As a result data management systems have been one of the main drivers for innovations in the database and computer architecture communities for several decades Recent hardware trends require software to take advantage of the abundant parallelism existing in modern and future hardware The traditional design of the data management systems however faces inherent scalability problems due to its tightly coupled components In addition it cannot exploit the full capability of the aggressive micro architectural features of modern processors As a result today s most commonly used server types remain largely underutilized leading to a huge waste of hardware resources and energy In this book we shed light on the challenges present while running DBMS on modern multicore hardware We divide the material into two dimensions of scalability implicit vertical and explicit horizontal The first part of the book focuses on the vertical dimension it describes the instruction and data level parallelism opportunities in a core coming from the hardware and software side In addition it examines the sources of under utilization in a modern processor and presents insights and hardware software techniques to better exploit the microarchitectural resources of a processor by improving cache locality at the right level of the memory hierarchy The second part focuses on the horizontal dimension i e scalability bottlenecks of database applications at the level of multicore and multisocket multicore architectures It first presents a systematic way of eliminating such bottlenecks in online transaction processing workloads which is based on minimizing unbounded communication and shows several techniques that minimize bottlenecks in major components of database management systems Then it demonstrates the data and work sharing opportunities for analytical workloads and reviews advanced scheduling mechanisms that are aware of nonuniform memory accesses and alleviate bandwidth saturation

Answering Queries Using Views Foto Afrati,Rada Chirkova,2022-11-10 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 Human Interaction with Graphs Sourav S. Bhowmick,Byron Choi,Chengkai Li,2022-06-01 Interacting with graphs using queries has emerged as an important research problem for real world applications that center on large graph data Given the syntactic complexity of graph query languages e g SPARQL Cypher visual graph query interfaces make it easy for non programmers to query such graph data repositories In this book we present recent developments in the emerging area of visual graph querying paradigm that bridges traditional graph querying with human computer interaction HCI Specifically we focus on techniques that emphasize deep integration between the visual graph query interface and the underlying graph query engine We discuss various strategies and guidance for constructing graph queries visually interleaving processing of graph queries and visual actions visual exploration of graph query results and automated performance study of visual graph querying frameworks In addition this book highlights open problems and new research directions In summary in this book we review and summarize the research thus far into the integration of HCI and graph querying to facilitate user friendly interaction with graph structured data giving researchers a snapshot of the current state of the art in this topic and future research directions **Community Search over Big Graphs** Xin Huang,Laks V.S. Lakshmanan,Jianliang Xu,2022-05-31 Communities serve as basic structural building blocks for understanding the organization of many real world networks including social biological collaboration and communication networks Recently community search over graphs has attracted significantly increasing attention from small simple and static graphs to big evolving attributed and location based graphs In this book we first review the basic concepts of networks communities and various kinds of dense subgraph models We then survey the state of the art in community search techniques on various kinds of networks across different application areas Specifically we discuss cohesive community search attributed community search social circle discovery and geo social group search We highlight the challenges posed by different community search problems We present their motivations principles methodologies algorithms and applications and provide a comprehensive comparison of the existing techniques This book finally concludes by listing publicly available real world datasets and useful tools for facilitating further research and by offering further readings and future directions of research in this important and growing area **On Transactional Concurrency Control** Goetz Graefe,2022-05-31 This book contains a number of chapters on transactional database concurrency control This volume s entire sequence of chapters can summarized as follows A two sentence summary of the volume s entire sequence of chapters is this traditional locking techniques can be improved in multiple dimensions notably in lock scopes sizes lock modes increment decrement and more lock durations late acquisition early release and lock acquisition sequence to avoid deadlocks Even if some of these improvements can be transferred to optimistic concurrency control notably a fine granularity of concurrency control with serializable transaction isolation including phantom protection pessimistic concurrency control is categorically superior to

optimistic concurrency control i e independent of application workload deployment hardware and software implementation

Data-Intensive Workflow Management Daniel C. M. de Oliveira,Ji Liu,Esther Pacitti,2022-06-01 Workflows may be defined as abstractions used to model the coherent flow of activities in the context of an in silico scientific experiment They are employed in many domains of science such as bioinformatics astronomy and engineering Such workflows usually present a considerable number of activities and activations i e tasks associated with activities and may need a long time for execution Due to the continuous need to store and process data efficiently making them data intensive workflows high performance computing environments allied to parallelization techniques are used to run these workflows At the beginning of the 2010s cloud technologies emerged as a promising environment to run scientific workflows By using clouds scientists have expanded beyond single parallel computers to hundreds or even thousands of virtual machines More recently Data Intensive Scalable Computing DISC frameworks e g Apache Spark and Hadoop and environments emerged and are being used to execute data intensive workflows DISC environments are composed of processors and disks in large commodity computing clusters connected using high speed communications switches and networks The main advantage of DISC frameworks is that they support and grant efficient in memory data management for large scale applications such as data intensive workflows However the execution of workflows in cloud and DISC environments raise many challenges such as scheduling workflow activities and activations managing produced data collecting provenance data etc Several existing approaches deal with the challenges mentioned earlier This way there is a real need for understanding how to manage these workflows and various big data platforms that have been developed and introduced As such this book can help researchers understand how linking workflow management with Data Intensive Scalable Computing can help in understanding and analyzing scientific big data In this book we aim to identify and distill the body of work on workflow management in clouds and DISC environments We start by discussing the basic principles of data intensive scientific workflows Next we present two workflows that are executed in a single site and multi site clouds taking advantage of provenance Afterward we go towards workflow management in DISC environments and we present in detail solutions that enable the optimized execution of the workflow using frameworks such as Apache Spark and its extensions Natural Language Data Management and Interfaces Yunyao Li,Davood Rafiei,2022-06-01 The volume of natural language text data has been rapidly increasing over the past two decades due to factors such as the growth of the Web the low cost associated with publishing and the progress on the digitization of printed texts This growth combined with the proliferation of natural language systems for search and retrieving information provides tremendous opportunities for studying some of the areas where database systems and natural language processing systems overlap This book explores two interrelated and important areas of overlap 1 managing natural language data and 2 developing natural language interfaces to databases It presents relevant concepts and research questions state of the art methods related systems and research opportunities and challenges covering both areas Relevant topics discussed on natural

language data management include data models data sources queries storage and indexing and transforming natural language text Under naturallanguage interfaces it presents the anatomy of these interfaces to databases the challenges related to query understanding and query translation and relevant aspects of user interactions Each of the challenges is covered in a systematic way first starting with a quick overview of the topics followed by a comprehensive view of recent techniques that have been proposed to address the challenge along with illustrative examples It also reviews some notable systems in details in terms of how they address different challenges and their contributions Finally it discusses open challenges and opportunities for natural language management and interfaces The goal of this book is to provide an introduction to the methods problems and solutions that are used in managing natural language data and building natural language interfaces to databases It serves as a starting point for readers who are interested in pursuing additional work on these exciting topics in both academic andindustrial environments **On Uncertain Graphs** Arijit Khan,Yuan Ye,Lei Chen,2022-05-31 Large scale highly interconnected networks which are often modeled as graphs pervade both our society and the natural world around us Uncertainty on the other hand is inherent in the underlying data due to a variety of reasons such as noisy measurements lack of precise information needs inference and prediction models or explicit manipulation e g for privacy purposes Therefore uncertain or probabilistic graphs are increasingly used to represent noisy linked data in many emerging application scenarios and they have recently become a hot topic in the database and data mining communities Many classical algorithms such as reachability and shortest path queries become P complete and thus more expensive over uncertain graphs Moreover various complex queries and analytics are also emerging over uncertain networks such as pattern matching information diffusion and influence maximization queries In this book we discuss the sources of uncertain graphs and their applications uncertainty modeling as well as the complexities and algorithmic advances on uncertain graphs processing in the context of both classical and emerging graph queries and analytics We emphasize the current challenges and highlight some future research directions **Query Processing over Incomplete Databases** Yunjun Gao,Xiaoye Miao,2022-06-01 Incomplete data is part of life and almost all areas of scientific studies Users tend to skip certain fields when they fill out online forms participants choose to ignore sensitive questions on surveys sensors fail resulting in the loss of certain readings publicly viewable satellite map services have missing data in many mobile applications and in privacy preserving applications the data is incomplete deliberately in order to preserve the sensitivity of some attribute values Query processing is a fundamental problem in computer science and is useful in a variety of applications In this book we mostly focus on the query processing over incomplete databases which involves finding a set of qualified objects from a specified incomplete dataset in order to support a wide spectrum of real life applications We first elaborate the three general kinds of methods of handling incomplete data including i discarding the data with missing values ii imputation for the missing values and iii just depending on the observed data values For the third method type we introduce the semantics of k nearest

neighbor kNN search skyline query and top k dominating query on incomplete data respectively In terms of the three representative queries over incomplete data we investigate some advanced techniques to process incomplete data queries including indexing pruning as well as crowdsourcing techniques **Skylines and Other Dominance-Based Queries** Apostolos N. Papadopoulos,Eleftherios Tiakas,Theodoros Tzouramanis,Nikolaos Georgiadis,Yannis Manolopoulos,2022-06-01 This book is a gentle introduction to dominance based query processing techniques and their applications The book aims to present fundamental as well as some advanced issues in the area in a precise but easy to follow manner Dominance is an intuitive concept that can be used in many different ways in diverse application domains The concept of dominance is based on the values of the attributes of each object An object dominates another object if is better than This goodness criterion may differ from one user to another However all decisions boil down to the minimization or maximization of attribute values In this book we will explore algorithms and applications related to dominance based query processing The concept of dominance has a long history in finance and multi criteria optimization However the introduction of the concept to the database community in 2001 inspired many researchers to contribute to the area Therefore many algorithmic techniqueshave been proposed for the efficient processing of dominance based queries such as skyline queries dominant queries and top dominating queries just to name a few **Querying Graphs** Angela Bonifati,George Fletcher,Hannes Voigt,Nikolay Yakovets,2022-06-01 Graph data modeling and querying arises in many practical application domains such as social and biological networks where the primary focus is on concepts and their relationships and the rich patterns in these complex webs of interconnectivity In this book we present a concise unified view on the basic challenges which arise over the complete life cycle of formulating and processing queries on graph databases To that purpose we present all major concepts relevant to this life cycle formulated in terms of a common and unifying ground the property graph data model the pre dominant data model adopted by modern graph database systems We aim especially to give a coherent and in depth perspective on current graph querying and an outlook for future developments Our presentation is self contained covering the relevant topics from graph data models graph query languages and graph query specification graph constraints and graph query processing We conclude by indicatingmajor open research challenges towards the next generation of graph data management systems **Data Profiling** Ziawasch Abedjan,Lukasz Golab,Felix Naumann,Thorsten Papenbrock,2022-06-01 Data profiling refers to the activity of collecting data about data i e metadata Most IT professionals and researchers who work with data have engaged in data profiling at least informally to understand and explore an unfamiliar dataset or to determine whether a new dataset is appropriate for a particular task at hand Data profiling results are also important in a variety of other situations including query optimization data integration and data cleaning Simple metadata are statistics such as the number of rows and columns schema and datatype information the number of distinct values statistical value distributions and the number of null or empty values in each column More complex types of metadata are statements about

multiple columns and their correlation such as candidate keys functional dependencies and other types of dependencies This book provides a classification of the various types of profilable metadata discusses popular data profiling tasks and surveys state of the art profiling algorithms While most of the book focuses on tasks and algorithms for relational data profiling we also briefly discuss systems and techniques for profiling non relational data such as graphs and text We conclude with a discussion of data profiling challenges and directions for future work in this area **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 **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 Cloud-Based RDF Data Management Zoi Kaoudi,Ioana Manolescu,Stamatis Zampetakis,2022-05-31 Resource Description Framework or RDF in short is set to deliver many of the original semi structured data promises flexible structure optional schema and rich flexible Universal Resource Identifiers as a basis for information sharing Moreover RDF is uniquely positioned to benefit from the efforts of scientific communities studying databases knowledge representation and Web technologies As a consequence the RDF data model is used in a variety of applications today for integrating knowledge and information in open Web or government data via the Linked Open Data initiative in scientific domains such as bioinformatics and more recently in search engines and personal assistants of enterprises in the form of knowledge graphs Managing such large volumes of RDF data is challenging due to the sheer size heterogeneity and complexity brought by RDF reasoning To tackle the size challenge distributed architectures are required Cloud computing is an emerging paradigm massively adopted in many applications requiring distributed architectures for the scalability fault tolerance and elasticity features it provides At the same time interest in massively parallel processing has been renewed by the MapReduce model and many follow up works which aim at simplifying the deployment of massively parallel data management tasks in a cloud environment In this book we study the state of the art RDF data management in cloud environments and parallel distributed architectures that were not necessarily intended for the cloud but can easily be deployed therein After providing a comprehensive background on RDF and cloud technologies we explore four aspects that are vital in an RDF data management system data storage query processing query optimization and reasoning We conclude the book with a discussion on open problems and future directions

The Top Books of the Year Information And Influence Propagation In Social Networks Carlos Castillo The year 2023 has witnessed a remarkable surge in literary brilliance, with numerous engrossing novels enthralling the hearts of readers worldwide. Lets delve into the realm of popular books, exploring the engaging narratives that have charmed audiences this year. Information And Influence Propagation In Social Networks Carlos Castillo : Colleen Hoovers "It Ends with Us" This poignant tale of love, loss, and resilience has captivated readers with its raw and emotional exploration of domestic abuse. Hoover masterfully weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can succeed. Uncover the Best : Taylor Jenkins Reids "The Seven Husbands of Evelyn Hugo" This captivating historical fiction novel unravels the life of Evelyn Hugo, a Hollywood icon who defies expectations and societal norms to pursue her dreams. Reids compelling storytelling and compelling characters transport readers to a bygone era, immersing them in a world of glamour, ambition, and self-discovery. Information And Influence Propagation In Social Networks Carlos Castillo : Delia Owens "Where the Crawdads Sing" This evocative coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens weaves a tale of resilience, survival, and the transformative power of nature, entrancing readers with its evocative prose and mesmerizing setting. These top-selling novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of captivating stories waiting to be discovered. The novel begins with Richard Papen, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts. The Secret History is a masterful and gripping novel that will keep you guessing until the very end. The novel is a warning tale about the dangers of obsession and the power of evil.

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Information And Influence Propagation In Social Networks Carlos Castillo Introduction

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