

MINING SEQUENTIAL PATTERNS FROM LARGE DATA SETS

by

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Mining Sequential Patterns From Large Data Sets

Malcolm Atkinson

Mining Sequential Patterns From Large Data Sets:

Mining Sequential Patterns from Large Data Sets Wei Wang,Jiong Yang,2005-07-26 In many applications e g bioinformatics web access traces system u lization logs etc the data is naturally in the form of sequences It has been of great interests to analyze the sequential data to find their inherent char teristics The sequential pattern is one of the most widely studied models to capture such characteristics Examples of sequential patterns include but are not limited to protein sequence motifs and web page navigation traces In this book we focus on sequential pattern mining To meet different needs of various applications several models of sequential patterns have been proposed We do not only study the mathematical definitions and application domains of these models but also the algorithms on how to effectively and efficiently find these patterns The objective of this book is to provide computer scientists and domain perts such as life scientists with a set of tools in analyzing and understanding the nature of various sequences by 1 identifying the specific model s of quential patterns that are most suitable and 2 providing an efficient algorithm for mining these patterns Chapter 1 INTRODUCTION Data Mining is the process of extracting implicit knowledge and discovery of interesting characteristics and patterns that are not explicitly represented in the databases The techniques can play an important role in understanding data and in capturing intrinsic relationships among data instances Data mining has been an active research area in the past decade and has been proved to be very useful

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Data Mining and Big Data Ying Tan,Hideyuki Takagi,Yuhui Shi,2017-07-18 This book constitutes the refereed proceedings of the Second International Conference on Data Mining and Big Data DMBD 2017 held in Fukuoka Japan in July August 2017 The 53 papers presented in this volume were carefully reviewed and

selected from 96 submissions They were organized in topical sections named association analysis clustering prediction classification schedule and sequence analysis big data data analysis data mining text mining deep learning high performance computing knowledge base and its framework and fuzzy control Very Large Data Bases ,2005 **Searching for**

Frequent Sequential Patterns in Large Datasets Linhui Jiang,2003 Proceedings of the 2001 ACM CIKM Henrique

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Applications Viviana E. Ferraggine,Jorge H. Doorn,Laura C. Rivero,2009-01-01 This book provides a wide compendium of references to topics in the field of the databases systems and applications Provided by publisher **Proceedings of the ...**

International Conference on Information and Knowledge Management ,2001 **Mining Big Data for Frequent**

Patterns Using MapReduce Computing Sumalatha Saleti,2023-08-31 The main motivation of frequent pattern mining is to extract useful patterns from the data sets Interesting associations among the data can be discovered by mining the frequent patterns Among the different kinds of pattern mining frequent itemset mining has been applied widely in many applications such as market basket analysis medical applications online transactions social network analysis and so forth An itemset is called frequent if the set of items in it appear frequently together However frequent itemset mining can find only the frequent itemsets the time regularity of the items cannot be found Sequential pattern mining considers both the frequency of the items and the order of items based on their time stamps It attracted great deal of attention in many applications such as customer buying trend analysis web access mining natural disaster analysis and so forth The patterns mined from sequential pattern mining algorithms do not consider the cost or profit of the item A sequence that is not frequent in a dataset may contribute much to the overall profit of the organization due to its high profit Hence utility sequential pattern mining considers quantity and timestamp of items as well as profit of each item Because of constantly arriving new data the resultant patterns of frequent pattern mining may become obsolete over time Hence it is necessary to incrementally process the data in order to refresh the mining results without mining from scratch The advancement in technology led to the generation of huge volumes of data from multiple sources such as social media online transactions internet applications and so forth This era of big data pose a challenge to explore large volumes of data and extract the knowledge in the form of useful patterns Moreover the conventional methods used in mining patterns are not suitable for handling the big data Hence in this thesis we investigate the solutions for frequent pattern mining on big data using a popular programming model known as MapReduce Firstly we propose a parallel algorithm for compressing the transactional data that makes the data simple and Bit Vector Product algorithm is proposed to mine the frequent itemsets from the compressed data Secondly distributed algorithm for mining sequential patterns using cooccurrence information is proposed Here we make use of item co occurrence information and reduce the search space using the pruning strategies Thirdly distributed high utility time interval sequential patterns with time information between the successive items are mined Finally an incremental algorithm is

proposed to make use of the knowledge obtained in previous mining while mining sequential patterns All the proposed algorithms are tested on our in house Hadoop cluster composed of one master node and eight data nodes *Data Mining for Association Rules and Sequential Patterns* Jean-Marc Adamo,2012-12-06 Data mining includes a wide range of activities such as classification clustering similarity analysis summarization association rule and sequential pattern discovery and so forth The book focuses on the last two previously listed activities It provides a unified presentation of algorithms for association rule and sequential pattern discovery For both mining problems the presentation relies on the lattice structure of the search space All algorithms are built as processes running on this structure Proving their properties takes advantage of the mathematical properties of the structure Part of the motivation for writing this book was postgraduate teaching One of the main intentions was to make the book a suitable support for the clear exposition of problems and algorithms as well as a sound base for further discussion and investigation Since the book only assumes elementary mathematical knowledge in the domains of lattices combinatorial optimization probability calculus and statistics it is fit for use by undergraduate students as well The algorithms are described in a C like pseudo programming language The computations are shown in great detail This makes the book also fit for use by implementers computer scientists in many domains as well as industry engineers

Proceedings of the ... IEEE International Conference on Fuzzy Systems ,2004 *Finding Frequent Patterns from Graph Datasets* Michihiro Kuramochi,2005 Proceedings of the Twenty-fifth International Conference on Very Large Databases, Edinburgh, Scotland, UK, 7-10 September, 1999 Malcolm Atkinson,1999 This is the silver anniversary of one of the longest running database conferences VLDB is among the best established forums for discussion in the international database community and is organized every year by the VLDB Endowment *Proceedings of the 2000 ACM SIGMOD International Conference on Management of Data* Weidong Chen,Jeffrey F. Naughton,Philip A. Bernstein,2000

Encyclopedia of Multimedia Technology and Networking Margherita Pagani,2008-08-15 This publication offers a research compendium of human knowledge related to the emerging multimedia digital metamarket Provided by publisher

VLDB 2005 ,2005 **Synopses of Science and Engineering Papers, Graduate School of Science and Engineering, Waseda University, Tokyo, Japan** ,2007 Journal of Information Science and Engineering ,2004 *Proceedings, ... International Workshop on Research Issues in Data Engineering* ,2005 KDD ... ,2006

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