Implementing Cognitive Apps Based Key Generation System

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ABSTRACT

Frequent pattern mining algorithm should not mine all frequent patterns but only the closed ones because the latter leads to not only a more compact yet complete result set but also better efficiency. However, most of the previously developed closed pattern mining algorithms work under the candidate maintenance-and-test paradigm, which is inherently costly in both runtime and space usage when the support threshold is low and the patterns become long. In this paper, we present BIDE, an efficient algorithm for mining frequent closed sequences without candidate maintenance. It adopts a novel sequence closure checking scheme called BI-Directional Extension and prunes the search space more deeply compared to the previous algorithms by using the Back Scan pruning method. A thorough performance study with both sparse and dense, real, and synthetic data sets have demonstrated that BIDE significantly outperforms the previous algorithm. It reveals only a small subset of the concept nodes finally the expected user navigation cost is minimized.

Keywords: Website Design, User Navigation, Page Ranking, Sequences, Frequent Closed Sequences

I. INTRODUCTION

Web graph properties are measured by considering the Web or a portion of it, such as a web site, as a directed hypertext graph where nodes represent pages and edges hyperlinks referred to as the Web graph. Web graph properties reflect the structural organization of the hypertext and hence determine the readability and ease of navigation. Poorly organized web sites often cause user disorientation leading to the "lost in cyberspace" problem. These metrics can aid web site authoring and create sites that are easier to traverse. Variations of this model may label the edges with weights denoting, for example, connection quality, or number of hyperlinks.

There are technique that discovers the gap between Web site designers' expectations and users' behavior. The former are assessed by measuring the inter-page conceptual relevance and the latter by measuring the inter-page access co-occurrence. The discovery of pages that are conceptually related but rarely co-occur in visits suggests areas where Web site design improvement would be appropriate. Further, the technique suggests how to apply quantitative data obtained through a multiple regression analysis that predicts hyperlink traversal frequency from page layout features. The appearance and rapid development of Internet has greatly changed environment of information retrieval. However, the rank algorithms for search engine based on Internet are directly related to experiences in using when users perform information retrievals in the new environment. The existing rank algorithms for search engine are mainly based on the link structure of web pages, and the two main representative algorithms are Page Rank algorithm and HITS algorithm. Many scholars and research institutions have made new explorations and improvements based on these two algorithms, and some mature integrated rank models suitable for search engines were generated. The value of RFM (Regency, Frequency, Monetary) analysis as a method to identify high-response customers in marketing promotions, and to improve overall response rates is well known and is widely applied today. RFM has been around for more than forty years. Less widely understood, however, is the value of applying RFM scoring to a customer database and measuring how customers migrate from cell to cell over time. This article examines one approach to an RFM Migration analysis which was applied recently in a segmentation exercise at Federal Express. The analysis explained herein actually took

place during the past year. The numbers used have been disguised to protect the confidential results of this program.

Why RFM works?

Customers who have purchased from you recently are more likely to respond to your next promotion than those whose last purchase was further in the past. This is a universal principle which has been found to be true in almost all industries: insurance, banks, cataloging, retail, travel, etc. It is also true that frequent buyers are more likely to respond than less frequent buyers. Big spenders often respond better than low spenders. These are the three simple principles lying behind RFM analysis. What skilled marketers have done is to take these three ideas and quantify them. They code all customers into RFM cells and examine the response rates of the customers in each cell when exposed to the same promotion. It is true, of course, that only a percentage of customers will make an additional purchase based on a new promotion. But, of those that do respond, the responses usually come from customers in higher ranking RFM cells. Federal Express has good data on customer purchase history. They used this data to code all customers by RFM. Then, they used this coding in a very interesting way.



Identify patterns of migration from RFM cell to cell over time. Determine the extent to which customer migration patterns fell into discernible clusters Identify investment and marketing strategies appropriate to each migration cluster. Assess the effectiveness of RFM vs. other segmentation and targeting migration strategies available for marketing promotions. Migration means, of course, that some customers improve their performance over time. They move to a higher ranking RFM cell. Other customers regress to lower ranking RFM cells. Profitable marketing comes from anticipating the migration of groups of customers

so that the marketing and service dollars are spent on higher value customers who will, in return, improve their spending and retention habits. Marketing dollars are thus not wasted on lower value customers who are less likely to migrate up. The customers for this exercise at Federal Express were selected based on whether they had purchased any one of a particular "family" of express services in a two year period. Purchase transactions were summarized at a half year level for each of the four services. The analysis file included the summary transaction data along with other demographic or behavioral data such as SIC code, company size, age of account, discount status, and whether customers used a FedEx automation device for their shipping. The first step was to determine which products to use in the migration analysis. Migration takes time. The goal was to select customers who used the service over both of the two years. This kind of RFM Migration Analysis can easily be duplicated by any business engaged in database marketing. The benefits are:

You can identify changes in RFM behavior patterns that would be invisible with the relatively static traditional application of RFM as a response improving technique RFM migration can be a valuable segmentation tool alongside your traditional segmentation approaches To the extent that you are able to identify or model key differences between the RFM clusters, the output can provide a clear course of action for the marketer. Investment strategies and marketing pro-forma are much easier to produce with the wealth of customer behavior and value information generated by this kind of study. If you are considering RFM migration analysis, what are the points you should keep in mind? Have a set of business objectives and be prepared to modify your methodology as new information becomes available before your original definition of the RFM score is precise enough to identify fine changes in behavior. For this analysis, deciles and better than quintiles. Don't however; make your definitions so fine as to prevent action later. The typical 125 cell approach used in RFM response analysis scoring is too fine to yield sufficiently distinct clusters. Regency, which is usually the most powerful factor in normal RFM analysis, is less important in Migration Analysis than frequency or monetary behavior. Marketing analysts and marketers must work closely together during migration analysis. Why? Because the analysis must be focused on how to use the output later in a way that is meaningful to the customer. Database marketing only works if the customer benefits from it. It is useless to identify a cluster unless you then use that knowledge to adjust your marketing investments up or down and in creative ways that will be meaningful to your valuable customers. Using RFM Migration analysis, you will be able to identify opportunities to create marketing messages that are relevant to your customers. You will be rewarded with increased business and improved customer satisfaction.

In this paper, we study the shortcomings of search engines, and provide further analysis on Page Rank algorithm and Hits algorithm integrating with BIDE algorithm. Besides, we discuss the existing improved algorithms based on link structure, and provide analysis on the improvement ideas of existing search engine rank technology. Moreover, research on traditional concept semantic similarity computation models based on domain ontology is given as well. According to the characteristics and shortcomings of existing models and algorithms, we firstly propose an improved concept semantic similarity computation model. Then, an improved rank algorithm which integrating categorization technology and traditional link analysis algorithm based on it is given in this paper, which improves HITS algorithm in two aspects, the preprocessing of Web pages and analysis on the link structure of Web page. At last, the evaluations are provided as well.

Sequential Patterns:



Search engines have gradually become a high efficient and convenient way for data query and information acquisition to people. With the continuous development of search engine technology, the current mature commercial search engines have experienced several generations of evolution. Meanwhile, Web information retrieval technology, which is the essence of search engines, including commercial products has come out for about20 years. In this period of time, great progresses in the aspects of retrieval key technology, system structure design, query algorithm and etc. are made, and a lot of commercial search engine services are being used on Web. Compare with these progresses, the rapid increment of data on Web weakens the achievement obtained in the research field of Web search in some degree the massive data quantity and frequent update speed have brought a completely new challenge as well.

Sample Data Set:



III. CONCLUSION

In this paper, implements examination system through the research and analysis on classical link page sequence generated structure-based algorithms and their related improvements, we will propose an improved BIDE algorithm based on categorization technology to generate closed sequences through the web pages for the effective retrieval of content from the web pages.

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