IJITCE

ISSN 2347- 3657

International Journal of Information Technology & Computer Engineering

Email : ijitce.editor@gmail.com or editor@ijitce.com

International Journal of Information Technology & Computer Engineering

ISSN 2347–3657
Volume 1,Issue4,oct 2013

An Enhanced Customer Satisfaction and Product Comparison from Large Unstructured Datasets

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ABSTRACT:-

In any aggressive business, achievement depends on the capacity to make a thing more speaking to clients than the rivalry. Various inquiries emerge with regards to this assignment: how would we formalize and evaluate the aggressiveness between two things? Who are the fundamental contenders of a given thing? What are the highlights of a thing that most influence its intensity? In spite of the effect and significance of this issue to numerous spaces, just a restricted measure of work has been committed toward a powerful arrangement. In this paper, we present a formal meaning of the intensity between two things, inlight of the market sections that the two of them can cover. Our assessment of intensity uses client surveys, a plentiful wellspring of data that is accessible in a wide scope of areas. We present effective strategies for assessing aggressiveness in enormous audit datasets and address the normal issue of finding the top-k contenders of a given thing. At last, we assess the nature of our outcomes and the versatility of our approach utilizing numerous datasets from various areas.

KEYWORDS :-. Data mining, Web mining, Information Search and Retrieval, Electronic commerce

I.INTRODUCTION:-

Users often have difficulties in expressing their web search needs; they may not know the keywords that can retrieve the information they require [1]. Keyword suggestion(also known as query suggestion), which has become one of the most fundamental features of commercial Web search engines, helps in this direction.After submitting keyword query, the user may not be satisfied with the results, so the keyword suggestion module of the search engine recommends a set of m keyword queries that are most likely to refine the user's search in the right direction. Effective keyword suggestion methods are based on click information from query logs [2], [3], [4], [5],[6], [7], [8] and query session data [9], [10], [11], or query topic models [12].New keyword suggestions can be determined according toothier semantic relevance to the original keyword query. The semantic relevance between two keyword queries can be determined (i) based on the overlap of their clicked URLs in a query log [2], [3], [4], (ii) by their proximity in a bipartite graph that connects keyword queries and their clicked Ursine the query log [5], [6], [7], [8], (iii) according to their co-occurrences in query sessions [13], and (iv) based on their similarity in the topic distribution space [12].However, none of the existing methods provide location aware keyword query suggestion, such that the suggested keyword queries can retrieve documents not only related to the user information needs but also located near the user location. This requirement emerges due to the popularity of spatial keyword search [14], [15], [16], [17], [18] that takes a user location and user-supplied keyword query as arguments and returns objects that are spatially close and textually\ relevant to these arguments. Google processed a daily average of 4.7 billion queries in 20111, a substantial fraction of which havelocal intent and target spatial web objects (i.e., points of interest with a web presence having locations as well as text descriptions) or geo-documents (i.e., documents associated with geo-locations). Furthermore, 53% of Bing's mobile searches in 2011 were found to have a local intent.2To fill this gap, we propose a Location-aware Keyword query Suggestion (LKS) framework. We illustrate the benefit of LKS using a toy example. Consider five geo-documents d1–d5 as listed in Figure 1(a). Each document di is associated with a location di:_ as shown in Figure 1(b). Assume that a user issues a keyword query kq = \seafood" at location, shown in Figure 1(b). Note that the relevant documentsd1–d3 (containing \seafood") are far from _q. A location aware suggestion is \lobster", which can retrieve nearby documents d4 and d5 that are also relevant to the user's original search intention. Previous keyword query suggestion models (e.g., [6]) ignore the user location and would_sh", which again

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International Journal of Information Technology & Computer Engineering

ISSN 2347–3657
Volume 1,Issue4,oct 2013

fails to retrieve nearby relevant documents. Note that LKS has a different goal and therefore differs from other location-aware recommendation methods(e.g., auto-completion/instant search [19], [20], tag recommendation[21]). The first challenge of our LKS framework is how to effectively measure keyword query similarity while capturing the spatial distance factor. In accordance to previous query suggestion approaches [3], [4],[5], [6], [7], [8], [10], [11], LKS constructs and uses a keyword-document bipartite graph(KD-graph for short), which connects the keyword queries with their relevant documents as shown in Figure 1(c).Different to all previous approaches which ignore locations,LKS adjusts the weights on edges in the KD-graph to capture not only the semantic relevance between keyword queries, but also the spatial distance between the document locations and the query issuer's location _q. We apply a random walk with restart (RWR) process [22] on the KD-graph, starting from the usersupplied query kq, to find the set of m key-word queries with the highest semantic relevance to kq and spatial proximity to the user location. RWR on a KD-graph has been considered superior to alternative approaches [7]and has been a standard technique employed in various(location-independent) keyword suggestion studies [5], [6],[7], [8], [10], [11]. The second challenge is to compute the suggestions efficiently on a large dynamic graph. Performing keyword\ suggestion instantly is important for the applicability of Losing practice. However, RWR search has a high computational cost on large graphs. Previous work on scaling up Research require pre-computation and/or graph segmentation[22], [23], [24], [25], [26]; part of the required Rescores are materialized under the assumption that the transition probabilities between nodes (i.e., the edge weights)are known beforehand. In addition, RWR search algorithms that do not rely on pre-computation (e.g., [27]) accelerate the computation by pruning nodes based on their lower or upper bound scores and also require the full transition probabilities. However, the edge weights of our KD-graph are unknown in advance, hindering the application of all these approaches. To the best of our knowledge, no existing technique can accelerate RWR when edge weights are unknown apriority (or they are dynamic). To address this issue, we present a novel partition-based algorithm (PA) that greatly reduces the cost of RWR search on such dynamic bipartite graph. In a nutshell, our proposal divides the keyword queries and the documents into partitions and adopts a lazy mechanism that accelerates RWR search. Pam and the lazy mechanism are generic techniques for Research, orthogonal to LKS, therefore they can be applied to speed up RWR search in other large graphs. In summary, the contributions of this paper are:_ Wedesign a Location-aware Keyword query Suggestion(LKS) framework, which provides suggestions that are relevant to the user's information needs and can retrieve relevant documents close to the query issuer's location._ We extend the state-of-the-art Bookmark Colouring Algorithm (BCA) [28] for RWR search to compute the location-aware suggestions.

II. Related Work:-

This paper builds on and significantly extends our preliminary work on the evaluation of competitiveness [30]. To the best of our knowledge, our work is the first toaddress the evaluation of competitiveness via the analysis oflarge unstructured datasets, without the need for direct comparative evidence. Nonetheless, our work has ties to previous work from various domains.

Managerial Competitor Identification: The management literature isrich with works that focus on how managers can *manually*identify competitors. Some of these works model competitor identification as a mental categorization process in whichmanagers developmental representations of competitors and use them to classify candidate firms [3], [6], [31]. Othermanual categorization methods are based on market- and resource-based similarities between a firm and candidate competitors [1], [5], [7]. Finally, managerial competitor identification has also been presented as a sense making process in which competitors are identified based on their potential to threaten an organizations identity [4].**Competitor Mining Algorithms:** Zheng et al. [32] identify key competitive measures (e.g. market share, share of wallet) and showed how a firm can infer the values of these measures for its competitors by mining (i) its own detailed customer transaction data and (ii) aggregate data for each competitor. Contrary to our own methodology, this approach is not appropriate for evaluating the competitiveness between any two items or firms in a given market. Instead, the authors assume that the set of competitors is given and, thus, their goal is to compute the value of the chosen measures for each competitor. In addition, the dependency on transactional data is a limitation we do not have. Doan et al. explore user visitation data, such as the geo-coded data from location-based social networks, as a potential resource for competitor mining [33]. While they report promising results, the dependence on visitation data limits the set of domains that can benefit from this approach. Pant and Sheng hypothesize and verify that competing firms are likely to have similar web footprints, a phenomenon that they refer to as *online isomorphism* [34]. Their study considers different types of isomorphism between two firms, such as the overlap between the in-links and out links of their respective websites, as well as the number of times that they appear together online (e.g. in search results or new articles). Similar to our own methodology, their approach is geared toward pair wise competitiveness. However, the need for isomorphism features limits its applicability to firms and makes it unsuitable for items and domains where such features are either not available or extremely sparse, as is typically the case with co-occurrence data. In fact, the sparsity of co-occurrence data is a serious limitation of a significant body

ISSN 2347–3657
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of work [8], [10], [11], [35] that focuses on mining competitors based on comparative expressions found in web results and other textual corpora. The intuition is that the frequency of expressions like "Item A is better than Item B" or item A Vs. Item B is indicative of their competitiveness.

III. Literature Survey:-

1) A technique for computer detection and correction ofspelling errors AUTHORS: F. J. Damerau

The method described assumes that a word which cannot be found in a dictionary has at most one error, which might bea wrong, missing or extra letter or a single transposition. The unidentified input word is compared to the dictionary again, testing each time to see if the words match—assuming one of these errors occurred. During a test run on

garbled text, correct identifications were made for over 95percent of these error types.

2) LIBSVM: A library for support vector

machinesAUTHORS: C.-C. Chang and C.-J. Lin

LIBSVM is a library for Support Vector Machines (SVMs). We have been actively developing this package since the year 2000. The goal is to help users to easily apply SVM to their applications. LIBSVM has gained wide popularity in machine learning and many other areas. In this article, we present all implementation details of LIBSVM. Issues such as solving SVM optimization problems theoretical convergence multiclass classification probability estimates and parameter selection are discussed in detail.

3) Beyond blacklists: Learning to detect malicious Websites from suspicious URLs

AUTHORS: J. Ma, L. K. Saul, S. Savage, and G. M. Voelker

Malicious Web sites are a cornerstone of Internet criminal activities. As a result, there has been broad interest in developing systems to prevent the end user from visiting such sites. In this paper, we describe an approach to this problem based on automated URL classification, using statistical methods to discover the tell-tale lexical and host-based properties of malicious Web site URLs. These methods are able to learn highly predictive models by extracting and automatically analyzing tens of thousands of features potentially indicative of suspicious URLs. The resulting classifiers obtain 95-99% accuracy, detecting large numbers of malicious Web sites from their URLs, with only modest false positives.

4) Design and evaluation of a real-time URL spam filtering service

AUTHORS: K. Thomas, C. Grier, J. Ma, V. Paxson, and D. Song

On the heels of the widespread adoption of web services such as social networks and URL shorteners, scams, phishing, and malware have become regular threats. Despite extensive research, email-based spam filtering techniques generally fall short for protecting other web services. To better address this need, we present Monarch, a real-time system that crawls URLs as they are submitted to web services and determines whether the URLs direct to spam. We evaluate the viability of Monarch and the fundamental challenges that arise due to the diversity of web service spam. We show that Monarch can provide accurate, real-time protection, but that the underlying characteristics of spam do not generalize across web services. In particular, we find that spam targeting email qualitatively differs in significant ways from spam campaigns targeting Twitter. We explore the distinctions between email and Twitter spam, including the abuse of public web hosting and redirector services. Finally, we demonstrate Monarch'sscalability, showing our system could protect a service such as Twitter--which needs to process 15 million URLs/day-- for a bit under $800/day.

5) Detecting spammers on social networks

AUTHORS: G. Stringhini, C. Kruegel, and G.

Social networking has become a popular way for users to meet and interact online. Users spend a significant amount of time on popular social network platforms (such as Facebook, MySpace, or Twitter), storing and sharing a wealth of personal information. This information, as well as the possibility of contacting thousands of users, also attracts the interest of cybercriminals. For example, cybercriminals might exploit the implicit trust relationships between users in order to lure victims to malicious websites. As another example, cybercriminals might find personal information valuable for identity theft or to drive targeted spam campaigns. In this paper, we analyze to which extent spam has entered social networks. More precisely, we analyze how spammers who target social networking sites operate. To collect the data about spamming activity, we created a large and diverse set of "honey-profiles" on three large social networking sites, and logged the kind of contacts and messages that they received. We then analyzed the collecteddata and identified anomalous behavior of users who contacted our profiles. Based on the analysis of this behavior, we developed techniques to detect spammers in social networks, and we aggregated their messages in large spam campaigns. Our results show that it is possible to automatically identify the accounts used by spammers, and our analysis was used for take-down efforts in a real-world social network. More precisely, during this study, we collaborated with Twitter and correctly detected and deleted15,857 spam profiles.

Proposed Algorithm:-

International Journal of Information Technology & Computer Engineering

ISSN 2347–3657
Volume 1,Issue4,oct 2013

Algorithm 2 PyramidFinder

Input: Set of items $\mathcal{I}$
Output: Dominance Pyramid $\mathcal{D}_{\mathcal{I}}$

```
1: D_I[0] ← Sky(I)
2: Z ← I \ Skyline(I)
3: level ← 1.
4: while Z is not empty do
5:     D_I[level] ← Sky(Z)
6:     for every item j ∈ D_I[level] do
7:         for every item i ∈ D_I[level − 1] do
8:             if i dominates j then
9:                 Add a link i → j
10:                break
11:            end if
12:        end for
13:    end for
14:    Z ← Z \ skyline(Z)
15:    level ← level + 1
16: end while
```

IV. Conclusion

We presented a formal dentition of competitiveness between two items, which we validated both quantitatively and qualitatively. Our formalization is applicable across domains, overcoming the shortcomings of previous approaches. We consider a number of factors that have been largely overlooked in the past, such as the position of the items in the multi-dimensional feature space and the preferences and opinions of the users. Our work introduce ssan end-to-end methodology for mining such information from large datasets of customer reviews. Based on our competitiveness dentition, we addressed the computationally challenging problem of finding the top-k competitors of a given item. The proposed framework is efficient and applicable to domains with very large populations of items. The efficiency of our methodology was veiled via an experimental evaluation on real datasets from different domains. Our experiments also revealed that only a small number of reviews is sufficient to confidently estimate the different types of users in a given market, as well the number of users that belong to each type

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