MATHEMATICAL PROGRAMMING MODEL FOR CREATING THE WEBSITE

NOMULA MADHAVI

Assistant Professor,

Department of Computer Science and Engineering,

KRISHNAPUR SANGAMMA

Assistant Professor,

Department of Computer Science and Engineering,

Siddhartha Institute of Technology and Sciences,

Narapally, Hyderabad, Telangana – 500 088.

ABSTRACT

This paper explains how to improve a website without making major changes. We present a mathematical programming paradigm for improving user navigation on a website while minimizing changes to the existing structure. Extensive experiments on a publicly available real data set show that our approach not only dramatically improves user navigation with relatively few changes, but also that it can be solved effectively. We also establish two evaluation measures and use them to evaluate the upgraded website's performance using real data. The user navigation on the new structure has been substantially improved, according to the evaluation results. More intriguingly, we discover that users who are severely bewildered are more likely to profit from the better structure than users who are not severely disoriented.

INTRODUCTION

The People can now obtain knowledge and explore information on a never-before-seen scale thanks to the Internet. As of September 2009, there were 1.73 billion Internet users worldwide, an increase of 18% over 2008. The rapidly increasing number of Internet users opens up enormous business prospects for businesses. According to Grau, retail e-commerce sales in the United States (excluding travel) were $127.7 billion in 2007 and are expected to reach $218.4 billion by 2012. Firms are extensively spending in the construction and maintenance of their websites in order to meet the growing demands of online clients. According to Internet Retailer, total website operations spending climbed in 2007, with one-third of site operators increasing spending by at least 11% over 2006.

Despite the significant and growing investments in website design, it is clear that locating necessary information on a website is difficult and that developing good websites is not a simple task. According to Galletta et al., online sales trail substantially behind those of brickand-mortar retailers, with at least part of the disparity explained by a significant problem customers face when perusing online stores. Poor website design, according to Palmer, has been a crucial factor in a number of high-profile site failures. Users who have trouble finding the targets are also more likely to abandon a website, even if the information is of good quality.

LITERATURE SURVEY

By redesigning the Web structure, the study hopes to improve Web navigation efficiency. Both navigation efficiency with and without target destination pages, e.g. for experienced and new users, is mathematically determined. Structure stability is taken into account to aid experienced users in maintaining their direction. The use of a stability restriction can also aid website designers in controlling the effort required to maintain a website. This research provides a mathematical programming strategy for reorganizing Web structure to improve navigation efficiency. The user requirements and the stability of the website structure can be specified by the designer. In instances when the user surfs with the goal location, an e-banking example is presented to demonstrate how the process works. This research has the benefit of evaluating and enhancing navigation efficiency, as well as relieving the designer of the time-consuming task of modifying the structure during transformation.

Approaches to website design based on analytical modelling have also been investigated. In order to improve Web information access and use, a survey of Web metrics examines fundamental graph characteristics that are relevant to website design and classifies a set of essential metrics for quantifying Web graph properties, such as page significance, page similarity, search and retrieval, usage characterization, and information theoretic properties. When investigating the attributes of the Web graph, Investigate important Web graph qualities such as compactness and stratum, which together give website designers with high-level assistance. Brin uses a graph to simulate website structural structures in order to determine page rankings. After some decades, investigate the web's hyperlinks and compare various ranking techniques. Web mining techniques are also used to look at the content, structure, and usage of websites. Kumar et al. devise a stochastic model for constructing a Web graph with statistically dependent edges and the ability to dynamically add new vertices over time.

METHODOLOGY

We offer a mathematical programming paradigm for improving website user navigation while minimising changes to the existing structure. Extensive experiments on a publicly available real

data set show that our approach not only dramatically improves user navigation with relatively few changes, but also that it can be solved effectively. In addition, we establish two evaluation measures and utilise them to evaluate the upgraded website's performance using real data. The results of the evaluation show that the new structure considerably improves user navigation. Even more intriguing, we discovered that individuals who are severely disoriented are more likely to benefit from the better structure than those who are less disoriented.

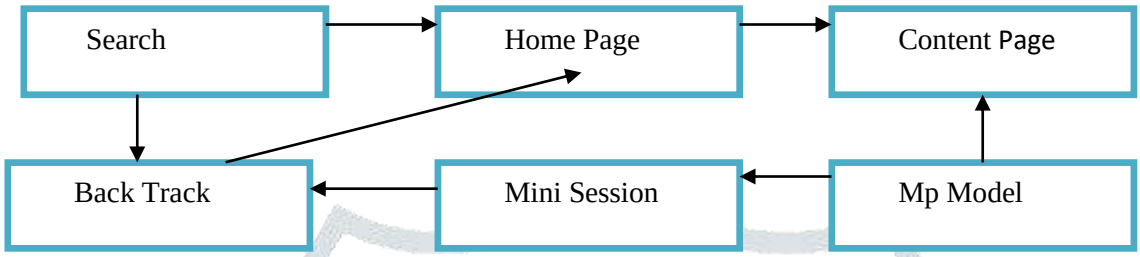

Figure 1: Architecture

Instead of personalising pages for individual users, web transformation entails altering the structure of a website to make navigating easier for a large number of people. Fu and colleagues offer a method for reorganising web pages so that consumers can get the information they want with fewer clicks. However, because this method only considers local website structures rather of the entire site, the new structure may not be ideal. Gupta et al. suggest relinking web pages to increase navigability using a heuristic method based on simulated annealing. Backtracks are used to trace the paths that a user has taken, with a backtrack defined as a user returning to a previously visited website. The assumption is that if users don't locate the page they're looking for, they'll go back. As a result, a path is defined as a sequence of pages accessed by a user without backtracking, a concept comparable to forward reference. Each backtracking point is essentially the conclusion of a journey. As a result, the more paths a user takes to attain the goal, the more the site structure deviates from the user's expectations.

RESULT AND DISCUSSION

The goal of this research was to examine the performance of two popular design patterns for navigating online retail websites. Expanding hierarchies (as shown in Figure 2, left navigation bar) have been used to display browsers where they are in the site's structure as well as other options. Breadcrumbs display all of the site's immediate super categories in the browser's current location hierarchy (see Figure 1, top navigation bar). By picking any of the visible connections, either of these systems can be used to navigate. When you click on a link, you'll be sent to the main page of that super category.

Figure 2: Screenshot of the Healthcare website

CONCLUSION

We present a mathematical programming approach in this study to increase the navigation effectiveness of a website while limiting modifications to its current structure, a vital subject that has received little attention in the literature. Our technique is especially well suited to informational websites with content that remains relatively constant over time. It improves a website rather than reorganizes it, making it suited for ongoing website maintenance. Our methodology improved user navigation significantly by adding only a few extra links, according to tests on a real website.

REFERENCES

1. Pingdom, "Internet 2009 in Numbers," http://royal.pingdom.com/2010/01/22/internet-2009-in-numbers/, 2010.
2. J. Grau, "US Retail e-Commerce: Slower But Still Steady Growth," http://www.emarketer.com/Report.aspx?code=emarketer_2000492, 2008.
3. Internetretailer, "Web Tech Spending Static-But High-for the Busiest E-Commerce Sites," http://www.internetretailer.com/ dailyNews.asp?id = 23440, 2007.
4. D. Dhyani, W.K. Ng, and S.S. Bhowmick, "A Survey of Web Metrics," ACM Computing Surveys, vol. 34, no. 4, pp. 469-503, 2002.
5. X. Fang and C. Holsapple, "An Empirical Study of Web Site Navigation Structures' Impacts on Web Site Usability," Decision Support Systems, vol. 43, no. 2, pp. 476-491, 2007.