ANALYSING THE WEBSITE NAVIGATION BAR USING MATHEMATICAL PROGAMMING APPROACH

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ABSTRACT

This document discusses how to improve a website by making simple changes. We provide a Mathematical Programming (MP) for improving user navigation on a website while retaining the existing structure to a minimum. Extensive experiments on a publicly available real-world data set show that our method not only significantly improves user navigation with small adjustments, but also that it can be solved effectively. We also create two evaluation measures and use them to evaluate the upgraded website's success using real-world data. User navigation on the new structure has greatly improved, according to the evaluation results. Even more noteworthy is the fact that, according to our data, users who are severely bewildered are more likely to benefit from the better structure than users who are not severely disoriented.

INTRODUCTION

People can now gain knowledge and explore information on a never-before-seen scale thanks to the Internet. In September 2009, there were 1.73 billion Internet users worldwide, an increase of 18% over 2008. The ever-increasing number of Internet users presents huge commercial prospects for businesses. According to Grau, retail e-commerce sales in the United States (excluding travel) totalled $127.7 billion in 2007 and are expected to reach $218.4 billion in 2008. Businesses are investing more in the construction and maintenance of their websites to meet the growing demands of online customers. According to Internet Retailer, total website operations spending climbed in 2007, with one-third of site operators increasing their spending by at least 11% from 2006.

Despite significant and growing investments in website design, it is clear that accessing critical information on a website is difficult, and that developing good websites is a difficult task. According to Galletta et al., online sales lag behind those of brick-and-mortar stores, with at least part of the disparity explained by a major obstacle that online shoppers face. Poor website design,

according to Palmer, has played a crucial part in a number of high-profile site failures. Users who have trouble finding the targets are more likely to leave a website, even if the information is of excellent quality.

LITERATURE SURVEY

This research has the benefit of analysing and enhancing navigation efficiency while also relieving the designer of the time-consuming task of altering the structure during the 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 like page significance, page similarity, search and retrieval, usage characterization, and information theoretic properties.

By altering the Web structure, the initiative aims to increase Web navigation efficiency. Mathematically determined navigation efficiency for experienced and inexperienced users, with and without target destination pages. The structure's solidity is thought to aid experienced users in maintaining their course. A stability restriction can also assist website designers in managing the amount of effort required to maintain a website current. This research presents a mathematical programming technique for reorganising the structure of the Web in order to improve navigation efficiency. The user requirements as well as the website structure's stability can be specified by the designer. An e-banking sample is provided when the user navigates to the appropriate destination to demonstrate how the operation works. When analysing the qualities of the Web graph, look into important Web graph properties like compactness and stratum, which together give website designers with high-level support. Brin uses a graph to duplicate website structural features in order to determine page rankings. After a few decades, investigate the web's linkages and compare various ranking methods. Web mining techniques are also used to look into the content, structure, and usage of a website. Kumar and his colleagues present a stochastic model for constructing a Web graph with statistically dependent edges and the ability to dynamically add new vertices over time.

METHODOLOGY

We provide a MP to improve website user navigation while keeping the current structure to a minimum. Extensive tests on a publicly available real-world data set show that our solution not only enhances user navigation with minor tweaks, but also that it can be solved effectively. We also build two assessment measures and use them to evaluate the success of the enhanced website using real data. The redesigned structure greatly improves user navigation, according to the evaluation. Surprisingly, we discovered that persons who are severely disoriented are more likely

to benefit from the enhanced structure than those who are not.

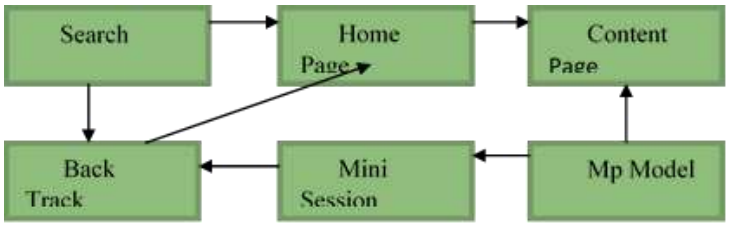

Figure 1: Architecture of MP

Rather than 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 his co-workers advise reorganising web pages so that users can get the information they need with fewer clicks. However, because this technique only assesses local website architectures rather than the complete site, the new structure may not be optimal. To increase navigability. Propose using a heuristic method based on simulated annealing to relink web pages. A backtrack is defined as a user returning to a previously visited website and is used to track a user's travels. The idea is that if users can't locate the page they're looking for, they'll come back. As a result, a path, similar to forward reference, is defined as a user-accessible succession of pages without backtracking. Each point of backtracking effectively marks the conclusion of a journey. As a result, the more paths a user takes to get their goal, the more the site structure departs from the user's expectations.

RESULT AND DISCUSSION

The goal of this investigation was to see how well two popular design patterns for navigating online retail websites worked. Using expanding hierarchies, browsers have been shown their current location in the site's structure as well as alternative options (as illustrated in Figure 2, left navigation bar). Breadcrumbs display all of the site's immediate super categories in the current browser location hierarchy (see Figure 2, top navigation bar). By picking any of the visible links using either of these techniques, you can navigate. You'll be sent to the super category's main page when you click on a link.

Figure 1: Screenshot of the Healthcare website

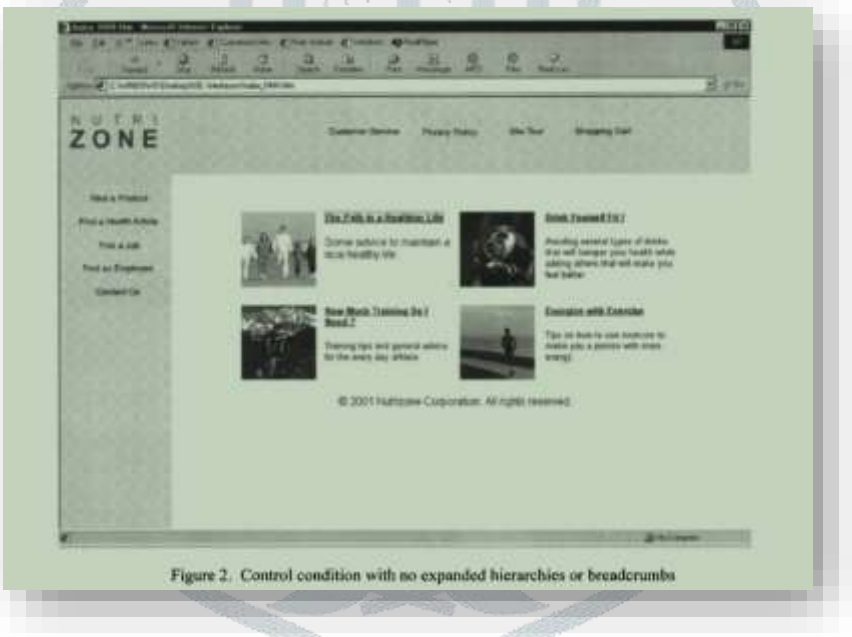

Figure 2: Working of the Navigation bar

CONCLUSION

We present a MP for increasing a website's navigation efficacy while limiting changes to its current structure in this work, a vital problem that has received little attention in the literature. Our approach is particularly well suited to informational websites with static content. It improves a website rather than reorganises it, making it suited for long-term website maintenance. Our methodology greatly improved user navigation by adding only a few extra links, according to tests on a real website.

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