Chapter 7

Analyzing Website Quality Issues through Web Mining:
A Case Study on University Websites in India

G. Sreedhar
Rashtriya Sanskrit Vidyapeetha (Deemed University), India

ABSTRACT

In the present day scenario the World Wide Web (WWW) is an important and popular information search tool. It provides convenient access to almost all kinds of information – from education to entertainment. The main objective of the chapter is to retrieve information from websites and then use the information for website quality analysis. In this chapter information of the website is retrieved through web mining process. Web mining is the process is the integration of three knowledge domains: Web Content Mining, Web Structure Mining and Web Usage Mining. Web content mining is the process of extracting knowledge from the content of web documents. Web structure mining is the process of inferring knowledge from the World Wide Web organization and links between references and referents in the Web. The web content elements are used to derive functionality and usability of the website. The Web Component elements are used to find the performance of the website. The website structural elements are used to find the complexity and usability of the website. The quality assurance techniques for web applications generally focus on the prevention of web failure or the reduction of chances for such failures. The web failures are defined as the inability to obtain or deliver information such as documents or computational results requested by web users. A high quality website is one that provides relevant, useful content and a good user experience. Thus in this chapter, all areas of website are thoroughly studied for analysing the quality of website design.
INTRODUCTION

A Website is a collection of Web pages containing text, images, audio and video etc. Thus Web is a vast collection of completely uncontrolled documents. Web pages are of two types, static and dynamic. Static Web pages are static in nature and requires no change in the content. Dynamic Web pages are dynamic in nature and their content is changing frequently. Dynamic Web pages use database for storing end-user information, product information, transaction data and content. Static Web pages are designed using Hypertext Mark up Language (HTML) files. Dynamic Web pages are designed using Dynamic HTML, Scripting Languages and other Web Programming techniques. Today, Web is not only an information resource but also becoming an automated tool in various applications. Over the last few years there has been a remarkable increase in use of the World Wide Web (WWW) for a wide and variety of purposes. There was also a fast growth in its applications. This led the Internet users to realize the importance and the benefits gained from a globally interconnected hypermedia system. The author (Bobby, n.d.) suggested that the sites will be eye-catching, easy to navigate, error free and that they will work in any browser. On the other hand it causes a larger number of useless, meaningless and badly designed websites on the Internet world causing unwanted additional traffic; this is all because of an unorganized non planned websites development processes. This had stake in the challenges in the evaluation task and also in quality assurance task. The management of web sites imposes a constant demand for new information and timely updates due to the increase of services and content that site owners wish to make available to their users, which in turn is motivated by the complexity and diversity of needs and behaviours of the users. Such constant labour intensive effort implies very high financial and personnel costs. Although there exists many design guidelines, and metrics for the evaluation of web sites and applications, most of them lack a well-defined specification framework and even worse a strategy for consultation and reuse. The World Wide Web Consortium (W3C) is an open source organizations and it defines various web standards for designing a website. The W3C is led by web inventor Tim Berners-Lee and CEO. The standards defined by W3C are considered as guidelines and these guidelines help in assessing the quality of website content in presenting the web content. Web mining is the process of investigating various aspects of websites. The growth of internet together with the increasing number of personal computers in the world makes for an increase in accessibility. Thus, a website is indeed a system that utilizes the internet as its underlying infrastructure and the web as its platform.

BACKGROUND

Web Mining: The data on World Wide Web are available in three different formats: web content, web structure and web usage. Web mining is usually defined as the use of data mining techniques to automatically discover and extract information from web documents and services. The authors of O. Etzioni (1996) and R. Cooley (1997) discuss in their research that web data mining can be defined in two distinct forms: first, it is defined as chain of order tasks and second, it is defined considering type of web data used in web data mining process. Web mining is the process of investigating various aspects of websites. The growth of internet together with the increasing number of personal computers in the world makes for an increase in accessibility. Thus, a website is indeed a system that utilizes the internet as its underlying infrastructure and the web as its platform.
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