Chapter I

Semantic Web Mining for Personalized Public E-Services

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Abstract

As citizens are confronted with increasing volumes of information, boundless choices, and endless opportunities in the Web environment, the need for personalised public e-services is more compulsory than ever. This chapter explores the way Semantic Web mining technologies can be incorporated into public e-services domain in order to better meet citizens and authorities requirements. It describes the various steps of the personalisation process and examines techniques in use today to support it. In sequence, it introduces a recommendation scenario for an e-city portal. Finally, the chapter illustrates current trends in the field suggesting directions that may lead to new scientific results in the area.

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Introduction

Over the last decade, we have witnessed the rapid evolution of the Web. This development allowed millions of people all over the world to access, share, interchange, and publish information. Moreover, public and private sector organisations are implementing highly functional and interactive Web-based applications that are accessible to any user with a computer, a Web browser, and a connection to the Internet. These potentials impact all dimensions of our daily life. Thousands of new Web sites are launched everyday providing e-services, accessible through Internet, suspending bureaucracy procedures, demanding personal contact of the users and loads of paper-based forms to be filled in. This “e-” prefix has been applied to a vast number of domains and applications such as e-commerce, e-business, e-learning, e-health, e-banking, e-marketing, and so forth, flavouring the respective domains with electronic services (e-services). This chapter focuses on e-government initiative, which relies on Web technologies in order to make the interactions between government and citizens (G2C) and also between government and businesses (G2B) easier, faster, and more efficient. It aims also at improving interdepartmental interactions on various levels of government for example government-to-employees (G2E) and government-to-government (G2G), as well as the elimination of redundant services.

E-government is not only the vehicle of a public authority Web presence. Its aim is to transform the nature of a governmental authority into an interactive and integrated institution, thus providing added value to citizens. Moreover, a series of strategic, administrative, and operational benefits can be accomplished by this transition from traditional profile to electronic one including: best coverage of citizens’ needs and consequently increase of their satisfaction, reduction of costs and response time, support of new and improved cooperations, automation of processes, upgrade of government’s profile and flavour to a friendlier one for the citizens, access to more and reliable information, promotion of information and communication technologies (ICT) usage by both individuals and businesses, and so forth.

However, the aforementioned Web growth has created a crucial problem: information overload. As the Web is a large collection of semistructured and unstructured information sources, Web users often suffer from this information overload. To alleviate this problem, personalisation becomes a popular remedy to customise the Web environment for users. Web personalisation can be described, as any action that makes the Web experience of users personalised to their needs and wishes. Principal elements of Web personalisation include modelling of Web objects (pages) and subjects (users), categorisation and preprocessing of objects and subjects, matching between and across objects or subjects, and determination of the set of actions to be recommended for personalisation.

There is an essential difference between layout customisation and personalisation. In customisation, the Web site can be adjusted to each user’s preferences regarding its structure and presentation. Every time a registered user logs in, the user’s customised home page is loaded. This process is performed either manually or semiautomatically. In personalisation systems, modifications concerning the content or even the structure of a Web site are performed dynamically.

The most popular form of personalisation is recommendations systems (RSs) (Adomavicius & Tuzhilin, 2005). RSs have emerged in the middle of 1990s and from novelties used by
An Extended Risk Assessment Model for Secure E-Government Projects
www.igi-global.com/article/extended-risk-assessment-model-secure/2072?camid=4v1a