Recommender Systems: The Importance of Personalization in E-Business Environments

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ABSTRACT

Due to the rapid growth of the internet in conjunction with the information overload problem the use of recommender systems has started to become necessary for both e-businesses and customers. However there are other factors such as privacy and trust that make customers suspicious. This paper gives an overview of recommendation systems, the benefits that both the business and the customers have and an explanation of the challenges, which if faced can make the personalization process better for both parties. Moreover an outline of current studies is given along with an overview of Amazon’s recommendations in order to clarify that the use of recommender systems is beneficial for an e-business in many ways and also for a valuable customer of such business.

Keywords: E-Business, E-Commerce, Personalization, Recommender Systems, Social-Media, Website

INTRODUCTION

The evolution of computers in combination with the rapid development of related networking infrastructures has brought e-commerce to a new level. The use of the Internet is moving forward and the need for e-commerce is becoming more wide and in different ways (Jannach et al., 2010). However as the information on the internet grows and the people who use these devices become larger there is a need to face the challenges that are tight related to these environments. The need to face the information overload is the most important nowadays and directs us to the use of recommendation technologies (Konstan & Riedl, 2012).

Recommender systems are concerned with the dynamic customization of data received over the World Wide Web and are based on user preferences (Ricci et al., 2011). The scope of the recommendations is to assist the user to decide what to buy, who to make friend to a social network or what news to read (Konstan & Riedl, 2012; Polatidis & Georgiadis, 2013, Prasad & Kumari 2012). Due to information overload on the internet, personalization systems are one of
the most valuable tools nowadays. Additionally it should be noted that it is a very demanding process to design and develop such a system, since it combines knowledge and skills from different computer science fields (Konstan & Riedl, 2012; Ricci, 2011). Despite of that, a number of well-respected methods have been developed the past few years, with some of them being used in commercial environments. Moreover, in mobile devices the information access problem becomes even harder because of the difficulties found due to hardware limitations.

It is important to note that the algorithms applied to web based systems cannot be transferred directly to a mobile device, since there are different needs, characteristics and limitations. The needs are about location-based services found mainly in tourism and mobile financial services. Characteristics refer to the user interface, processing power, memory capabilities and limitations, which are about the network boundaries found in the Global System for Mobile Communications (GSM), Wi-Fi and the Global Positioning System (GPS). However the advantages are more important and include the ubiquity and the location-based service, which are crucial factors that mobile recommender systems are based (Ricci, 2011).

Furthermore the need for privacy has become a very important aspect of personalization techniques (Kobsa, 2007; Shyong et al., 2006; Benats et al., 2011; Jeckmans et al., 2013). It is vital for the system to use some private data in order to provide accurate recommendations. However it should be taken into consideration that privacy is a massive problem with negativity towards the use of recommenders in personalized environments (Jeckmans et al., 2013; Polatidis & Georgiadis, 2013). Most of the time simple users are not aware how e-commerce organizations use these data and they react in various destructive ways. We have reached a point that merchants want to improve their service and use unfair practices. However, there is a reconciliation point that could be reached if both parties are willing to work towards this road.

The research is aims to show that personalized systems can improve the user experience. However, in mobile environments attributes such as location and time should be embedded to such algorithms but on the other hand there are privacy concerns that have to be taken into consideration (Ricci, 2011).

Additionally, there are still open questions that need extensive research to be answered. These include further investigation on business related aspects of recommender system, including financial gains of e-businesses and limitation of search costs. In addition other e-commerce goals should be explored in mobile environments. These include the goals of mobile recommender systems and the expectations of the users such as implications associated with the location-based parameter and if this should be compulsory or enforced only when questioned. Also, it is not clear if there is a mobile domain or there are a number of e-commerce scenarios that are more suitable to mobile devices such as tourism, mobile banking and personalized advertising. However these questions are still open, because recommender systems are a relatively new field of study found in the literature and the lack of surveys and results is obvious (Konstan & Riedl, 2012).

THE IMPORTANCE OF RECOMMENDER SYSTEMS FOR E-BUSINESSES

Recommender systems are computer algorithms used widely in e-commerce to suggest items to a user. The recommendations are about what items to buy, news reading, social networking connections and what movies to rent among many others. Among the most popular websites that use recommender systems is Amazon.com, which provides a personalized web page to each individual user. Netflix is another example website that uses recommender systems to suggest movies and TV shows. Such systems in general suggest a list with top N items relevant to the user. The items are retrieved according to rules

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