Chapter 2.29
Developing Visual Tourism Recommender Systems

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ABSTRACT

Tourism recommender systems (TRS) have become popular in recent years; however, most lack visual means of presenting the recommendations. This paper presents ways of developing visual travel recommender systems (V-TRS). The two popular travel recommender systems being used today are the TripMatcher™ and Me-Print™. Tour recommendation using image-based planning using SCORM (TRIPS) is a system that aims to make the presentation more visual. It uses SCORM and CORDRA standards. Sharable content object reference model (SCORM) is a standard that collates content from various Web sites, and content object repository discovery and registration/resolution architecture (CORDRA) aims to locate and reference SCORM repositories throughout the Internet. The information collected is stored in the form of an XML file. This XML file can be visualised by either converting it into a Flash movie or into a synchronized multimedia integration language (SMIL) presentation. A case study demonstrating the operation of current travel recommender systems also is presented. Further research in this area should aim to improve user interaction and provide more control functions within a V-TRS to make tour-planning simple, fun and more interactive.

INTRODUCTION

Recommender systems have become popular with the advent of e-commerce. The development of this technology is being strengthened as more people start using the Internet for making purchases. Recommender systems are used by

Amazon.com (Linden, Smith, & York, 2003) to recommend books, and movies are recommended on MovieLens (Miller, Albert, Lam, Konstan, & Riedl, 2003). In recent years there has been much work done to improve recommender systems. With increasing Internet adoption, business transactions on the Internet are likely to grow substantially; this encourages vendors to add recommendation capabilities to their Web sites (Peddy & Armentrout, 2003). Tourism is one of the most successful and dynamic industries in the world, and is constantly evolving with continuous technological advancements that include Internet based systems. One such advancement is visual travel recommender systems (V-TRS).

Travel recommender systems (TRSs) are increasingly being adopted to support the tourism industry, some examples of this include Triplehop's TripMatcher™ (Delgado, 2001; Starkov, 2001), and VacationCoach's expert advice platform Me-Print™ (VacationCoach, 2002). A TRS allows tourists to access an informed recommendation for travel planning via an artificial intelligence-based engine. However, current TRSs do not provide tourists with the facility to visualise their complete holiday itinerary, integrating location, transportation, accommodation, attractions, and entertainment. The tourist has to browse through individual Web pages to build a mental picture of the planned tour. In this chapter we introduce the concept of a visual TRS, which can overcome this limitation.

The main objectives of this chapter are:

- To understand recommender systems
- To provide an insight into current application of recommender systems in the tourism industry
- To gain an understanding of services provided by TRS systems, their benefits and limitations
- To present the framework of a visual travel recommender system

- To present a case study demonstrating the operation of current travel recommender systems
- To discuss the future trends in travel recommender systems

BACKGROUND INFORMATION

Recommender Systems

"Recommender Systems are an attempt to mathematically model and technically reproduce the process of recommendations in the real world" (Berka & Plößnig, 2004). Recommender systems are being used by e-commerce Web sites to make suggestions to their customers (Schafer, Konstan, & Riedl, 1999). These recommendations can be made on various factors such as demographics, past buying behaviour of the customers, and prediction of the future buying behaviour.

Recommender systems enhance sales in three different ways (Schafer et al., 1999):

- **Browsers to buyers:** A good Web site can turn visitors of the site into buyers by helping them find the products they wish to purchase.
- **Cross-selling:** Well linked Web pages can improve cross-selling by suggesting additional products for the customer to purchase.
- **Loyalty:** Recommender Systems can improve loyalty by creating a relationship of trust between the Web site and the customer.

Classification of Recommender Systems

The process of recommendation varies depending on the application and the system in question. However, the general concepts underpinning rec-

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