Web based Tourism Information System of Myanmar

Htet Htet Hlaing, Dr. Nan Saw Kalayar
Computer University, Taunggyi
htet.grace@gmail.com

Abstract

E-commerce initiatives show that tourism data is one of the most accessed data in the Web. The problem is that a high number of users are rather unexperienced in Web use. The handling of tourism information systems is often a complex and time consuming process for tourists. To satisfy the tourists' expectations it is inevitable to support the tourist in travel planning and decision making. To meet the tourists' interests and preferences there are several approaches to support the tourist.

This paper presents Web-based Travel Information System of Myanmar. The development of efficient search functions is not an easy task in the field of information systems. The handling of tourism information systems is often a complex and time consuming process for tourists. Therefore, we need Travel Information System of Myanmar to help Traveler in travelling Myanmar.

1. Introduction

Tourism is a dynamic industry. In recent years, with many countries turning to tourism to supplement their economies, there has been a massive expansion of tourism vendor offerings. As more travel arrangements are made online, pressure is put on e-Tourism website developers to provide efficient and easy to use interfaces and intelligent services.

In a general sense, the term Information System (IS) refers to a system of people, data records and activities that process the data and information in an organization, and it includes the organization's manual and automated processes. In a narrow sense, the term information system (or computer-based information system) refers to the specific application software that is used to store data records in a computer system and automates some of the information-processing activities of the organization. Computer-based information systems are in the field of information technology. The discipline of business process modelling describes the business processes supported by information systems.

The World Wide Web (WWW) is a technologically active environment, and information systems developed for the WWW differ in significant areas from traditional applications. Existing literature has suggested that software development methodologies for traditional applications may have to be modified, or indeed replaced to meet the needs of the web. Consequently, a number of software development methodologies have emerged to support the development of web-based information systems. This paper explores the current software development methodologies used by organisations in developing web-based information systems.

The structure of this paper is as follows. Section 2 presents related work with our system.Section 3 presents the background theory used in this system, explaining the web-based system and web based information system. Section 4 illustrates the proposed system design and Section 5 is system implementation. Finally, section 6 has conclusion and summary of the paper.

2. Related Work

There is an abundance of information on the graphical and user interface aspects of web site design. In addition, a large body of knowledge has been developed in the area of software development methodologies. A web-based information system can be defined as an application that not only disseminates information, but also proactively interacts with the user to aid them in their task [6]. Information is therefore presented to the user in a bi-directional manner in a web-based information system.

While this definition of a web-based information system is generalised, there are commonalties between such systems. They adopt extensions to the basic HTML, using Java, Java Script, or VB Script to provide additional functionality to the basic hypertext links. Dynamic creation of HTML pages are also common in web-based information systems, using a connection to a relational or object-oriented database to process user requests. This is becoming increasingly more important in the development of electronic commerce environments, such as on-line

shopping, where there is a need to process user requests while also keeping the information on the web page up to date [10].

The emergence of database centric applications on the web has led to a change in the nature of web pages. This emerging change is supported by the observations of Gellersen, Wicke and Gaedke [4] as they categorise web pages as being either static or dynamic. Static hypertext systems, as commonly provided by standard web pages, can be characterised by both static links and static pages. Database-centric applications are characterised by dynamic page creation but have a static link structure. Dynamic applications, however, provide both dynamic link structure and page creation. web-based information systems fall into the database-centric and dynamic application classes.

A web-based information system therefore provides structured as well as unstructured information as described by Bichler & Nusser [7], they consider database-centric web-based information systems as providing highly structured information with high volatility. On the other hand, dynamic web-based information systems that provide more multimedia services, support unstructured information with low volatility.

Web-based information systems are fundamentally different from traditional systems in several critical areas. Web applications often involve people with differing skill sets, including authors, content designers, artists as well as programmers. web applications also involve the capturing and organising of the structure of a complex information domain, whilst making it clear and accessible to the user [7].

3. Web-based System

The Web brings database information to the world. This offers huge market potential in Business to Customer (B2C) and efficiency gains in Business to Business (B2B) electronic commerce. To implement the web-based system, there must web server installed. There are several types of web server, for example, Internet Information Server for Microsoft. A database can be made accessible to users who do not have a database interface. Server-side scripting is used to send queries to the database and translate answers to HTML.Data in the database can be updated by administrators. Normal users have retrieval access and sometimes can post user profile data into the database.

3.1. Information System

In a very broad sense, the term information system is frequently used to refer to the interaction between people, processes, data and technology. Information systems are distinct from information technology in that an information system is typically seen as having an Information Communication Technology (ICT) component. Information systems are also different from business processes. Information systems help to control the performance of business processes.

Alter argues for an information system as a special type of work system. A work system is a system in which humans and/or machines perform work using resources (including ICT) to produce specific products and/or services for customers. An information system is a work system whose activities are devoted to processing (capturing, transmitting, storing, retrieving, manipulating and displaying) information.

3.2. Web-based Information System

Web-based information system is an information system that uses Internet web technologies to deliver information and services, to users or other information systems/applications. It is a software system whose main purpose is to publish and maintain data by using hypertext-based principles.

A web information system usually consists of one or more web applications, specific functionality-oriented components, together with information components and other non-web components. Web browser is typically used as front-end whereas database as back-end.

3.3. Travel Information System

As is the case with other aspects of economic and social life, tourism-related services are nowadays being made available through the Web. The majority of tourism/travel suppliers (particularly airlines, hotels) provide Web pages that incorporate useful supplier-based information.

In fields such as information or multimedia retrieval, where plenty of user interaction is available to the system, and user preferences may be modeled through their thematic categorization, it is relatively easy to generate user profiles by monitoring user actions and then use them to customize offered services.

Users typically access them sparsely, often without any form of authentication/ identification, and little feedback is offered to the system concerning the user’s satisfaction from its performance.

4. Proposed System

This system presents the Travel Information System of Myanmar. It mainly provides the attractions of Myanmar by their ranking and mostly visited places. Other extra information such as State Information, Townships in the states, Airlines, Hotels are also provided. The other feature provided in this system is travel plan recommendation. Travel Plan recommendation is generated based on user preferences. Based on user preferences, such as if user likes 'Ancient Studying', then travel plan mainly includes ancient pagodas from Bagan and Myrauk U. If user got one week to stay in Myanmar, the plan consists two or three places (for example, Yangon, Bagan and Mandalay) and if user got more time there will be more places to visit in the plan. The plan generation is also based on the rank of the places, i.e., places with higher rank have more chance to be in the package plans, than places with lower rank. Dijkstra's Shortest Path algorithm is used to find the distance between places to visit one after another.

Figure 1 presents the proposed system design, where user puts query or without query, this system will provide travel information to the user. The main aim of the proposed system is providing required information to the users (travelers). User may request query or may not request (just browse). When user request query through web based user interface, information management component finds the required data in the database. Then it returns results back to user through web based user interface.

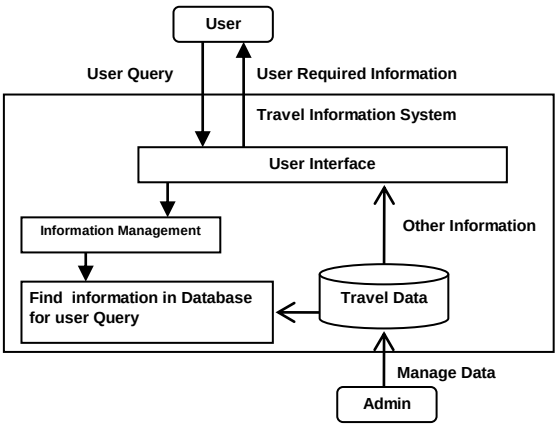

Figure 1: Proposed System Design

4.1. Shortest Path Algorithm

Graphs are useful for representing many problems in computer science and in the real world. Applications of graph representations range from the seemingly simple, finding out whether a node is reachable from another node, to the extremely complex, such as finding a route that visits each node and minimizes the total time (the "travelling salesman" problem). A common, but solvable problem is that of problem of simple path finding. Generally, the task is determining the shortest path from a given node to any other node on the graph. In this system, it will present three algorithms for finding the shortest path.

4.1.1. Dijkstra's Algorithm

The Dijkstra's shortest path algorithm is the most commonly used to solve the single source shortest path problem today. For a graph G(V, E), where V is the set of vertices and E is the set of edges, the running time for finding a path between two vertices varies when different data structure are used. This project uses binary heap to implement Dijkstra's algorithm although there are some data structures that may slightly improve the time complexity, such as Fibonacci heap that can purchase time complexity of O(V*log(V)).

Dijkstra's shortest path algorithm

```
for each u G:
   d[u] = infinity;
   parent[u] = NIL;
End for
d[s] = 0; // s is the start point
H = {s}; // the heap
while NotEmpty(H) and targetNotFound:
   u = Extract_Min(H);
   label u as examined;
   for each v adjacent to u:
     if d[v] > d[u] + w[u, v]:
    d[v] = d[u] + w[u, v];
    parent[v] = u;
  End for
    DecreaseKey[v, H];
End while
```

4.2. Travel Information Management

This system provides following information –

- Attractions (Places to visit in a specific area, including pagodas, museum, park, market, mountains, beaches, lakes, etc)
- Festivals
- Hotels (Hotels are displayed according to their rank, for example five star, four star, with average price information)
- Airlines (shows airlines based on From Town → To Town)

This system gives the user with a set of travel plans based on user preferences.

- A travel plan contains a set of locations, with approximate travel time, approximate costs and other information about that location.
- When the user supplies his / her preferences, the system will find in the previous cases, similar to user's preferences.
- If the similar case is found, travel plan is generated according to that case.
- Otherwise, user preference is searched in the knowledge base and find most suitable plan for the user.
- Then generated travel plans are revised by the user, and user may also edit the travel plan.

5. System Implementation

This system is implemented as web based Travel Information SystemFigure 2 presents the database model used in this system.

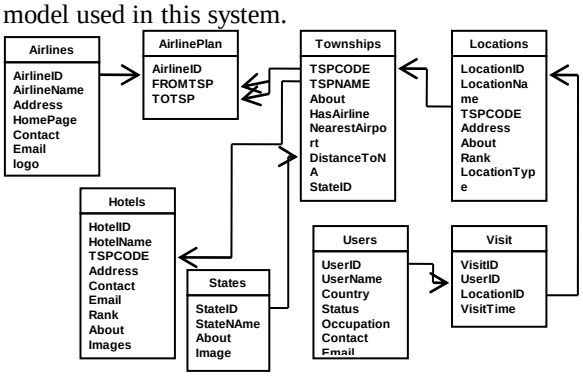

Figure 2: Database design of Myanmar Tourism Information System

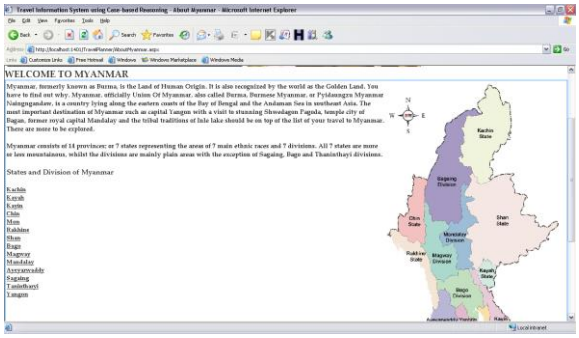

Figure 3: Web Page of Myanmar Tourism Information System

This system also provides suggested travel plan for the travelers based on their preferences. It is based on the history data stored in this system (visits to attractions) and rank of the locations. Travel plan mainly includes towns and attractions at the town. User profile and preferences include, his / her originated country, Visit Type (Pleasure, Sight Seeing, Ancient Studying, Ethnic Groups and Ecotourism), Financial Status (High, Medium, Economy), Personal Status (Single, Family, Couple, Group), Gender (Male, Female) and Days in Myanmar (One Week, Two Weeks, Three Weeks and A month). Attraction information for Shwedagon Pagoda is shown in Figure 4

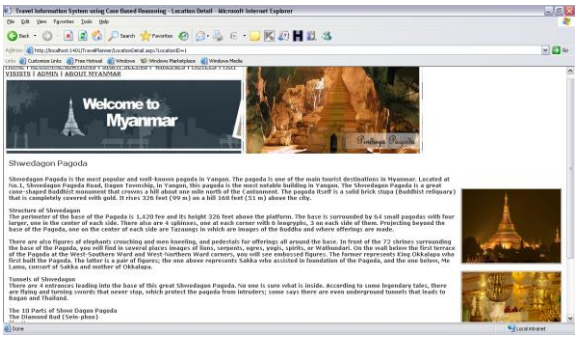

Figure 4: Information about Shwedagon Pagoda

Internet Information Server is used to host the system. We have collected data from the books of Ministry of Hotel and Tourism and Myanmar travelling web sites. After observing travel and tour sites in the internet, it is found that this system provide not only travel information but also provides travel plan suggestion for the tourists.

6. Conclusion

Modern travel recommendation systems have the need to support the tourist in travel planning. The information presented must be readable, useful and valuable. Content, data quality and presentation must meet the tourist's needs and expectations. This system helps the tourist to plan his travel by searching in this system and providing what they want. In simple terms, travel information system interacts with tourists, learns their preferences, and responds with highly targeted, personalized travel plan packages, which base on an underlying knowledge base. To avoid from difficulties in the initial phase of such a system, some search strategies are needed until the knowledge base has enough information to work similarity-based.

7. References

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