Hybrid Semantic Ontology Data (HSOD) Analysis Algorithm for Heterogeneous Tourism Information

S. Subhalakshmi[1*], C. Premila Rosy[2]

[1,2]Dep of Computer Science, Idhaya College for Women, Kumbakonam, Tamilnadu, India

Corresponding Author: premilarosy78@gmail.com

Abstract— This technique is an ontology-based approach and a formal concept analysis (FCA) approach to integrating heterogeneous tourism information for online tour planning. Two ontologies, ontology for tourists and ontology for tourism information providers, are developed with respect to their own perspective. The ontology for tourists is developed from the tourism literature. The ontology for tourism information providers is developed by integrating heterogeneous online tourism information using a FCA approach. This **HSOD Hybrid Semantic Ontology Data (HSOD) Analysis** is then mapped using the FCA and Bayesian analysis to evaluate tourists' preferences against information published by tourism information providers. An example of planning a tour to Thanjvaur, Trichy is used to illustrate the proposed ontology approach. An analytic hierarchy process is used to rank the tourism attractions suggested by the ontology and FCA based approaches.

Keywords— Ontology design, tourism, recommender system, formal concept analysis.

I. INTRODUCTION

In recent years, the number of e-tourists has significantly increased in response to the increasing availability of on-line tourism information. Planning at our on-line requires detailed information about several aspects of tourist attractions, [1] such as the activities provided their open hours, admission fees, and the routes between them. A single tourism web site seldom provides all needed information, while different web sites may provide diverse and often conflicting information about [3] [4] the same attraction. For a given piece of information, such as admission fees, it may be presented in various expressions, typically 'cost', 'admission price', and 'entry price', as well as the term admission fees itself. For an effective tour plan, the semantically heterogeneous information needs to be integrated and uniformly represented, otherwise tour planning on-line is often seen a tedious and frustrating experience.

Recent developments [2] [5] [6] in ontology research make it possible to integrate diverse information such as that available from on-line sources. Ontology includes a set of concepts and the relationships between them. The meaning of the on-line information can be understood in a uniform manner according to ontology's, and heterogeneous information can then be integrated.

Similar to transportation, way finding, and other related fields, tour planning as always involved two types of participant's tourists and tourism information [7] [8] providers. Tourists are individual's hotel travel to and stay in places outside their usual environment for a short period of time for leisure, business, and other purposes. The discussion in this paper focuses on those tourists who travel for leisure, the most frequently reported purpose. Tourism information providers provide information about attractions at a destination over the Internet. The providers can be various government and non-profit organizations, tourism service suppliers, intermediaries (e.g. travel agents), and tourists themselves. This paper focuses on the information provided by government and non-profit organizations as their information tends to be comprehensive, objective, and structured, thus ideal for ontology development. Although tourists-generated [9] [10]social media information has become increasingly important for tour planning, it tends to be anecdotal and unstructured. Tourism web sites, especially those provided by the government and non-profit organizations, remain as better information systems. Tourists and tourism information providers, as the two types of participants in tour planning, have their own perspectives. Each perspective can be represented by an ontology.

The ontology for tourists is concerned with a typical tourist's preferences. The concepts and their relationships for this ontology are derived from research in choice models, an important component of tourism literature. Choice models study factors that influence the selection of tourism services, such as what attractions a tourist may choose to visit. For this

research, a set of factors is extracted from the choice model literature using the papers listed in Appendix A (in addition to the references). Information about these factors includes their name, definition, and properties. The extracted factors and 'sub-factors' in the original literature are used as concepts and sub-concepts, respectively, in the ontology for tourists. The concept and sub-concept relationships are specified based on the context of the literature. The properties associated with the factors specified in the original literature are treated as the properties of the concepts in the ontology.

II.   METHODOLOGY

The ontology for tourists is developed from the tourism literature. The ontology for tourism information providers is developed by integrating heterogeneous online tourism information using a FCA approach. This **HSOD Hybrid Semantic Ontology Data (HSOD) Analysis** is then mapped using the FCA and Bayesian analysis to evaluate tourists' preferences against information published by tourism information providers. An example of planning a tour to New York City is used to illustrate the proposed ontology approach. An analytic hierarchy process is used to rank the tourism attractions suggested by the ontology and FCA based approaches.
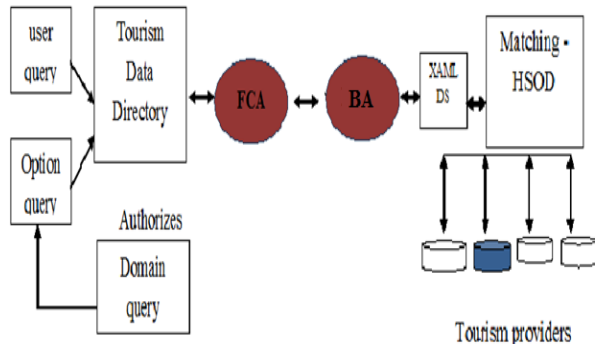

FIGURE 1: SYSTEM ARCHITECTURE

This research explores an ontology-based approach to addressing the aforementioned semantic integration and mapping issues. The specific objectives are three-fold. The first objective is to develop an ontology to represent the perspective of tourists from the tourism literature. The second is to build an ontology for tourism information providers that integrates heterogeneous on-line tourism information using a Formal Concept Analysis (FCA) approach.

The third objective is to map between the ontology for tourists and the integrated ontology for the tourism information providers, using an FCA and a Bayesian

approach in order to devise a tour plan. An example of tour planning for a trip to New York City is presented in order to illustrate the ontology- based tour planning. While the ontological approach suggests candidate attractions for the tourist, an analytic hierarchy process (AHP) method is used to rank the candidates, which is important for an actual tour plan.

III.   RESULTS AND DISCUSSION

This paper has integration of Hybrid Semantic ontology data for the Tourism information has the better performance compare to earlier concept. It has improves the performance of the user search and as well as user get the appropriate result in the regarding of tourism information. Earlier model they are using the concept they are getting the result like the below table. In our project we consult each and every point check the user need and everything consider as input and get the output according to the users input so ever page it checking the users input and get the output from the ontology data. Everything will be consider in our project in our users need.

Graph
In our earlier system works like
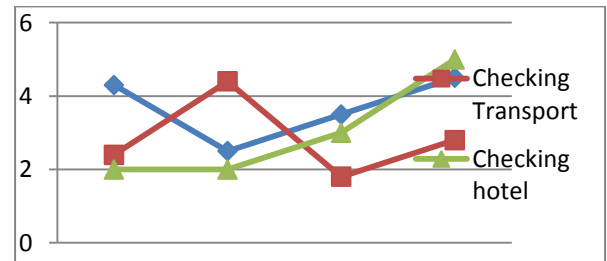
In our project has work like that
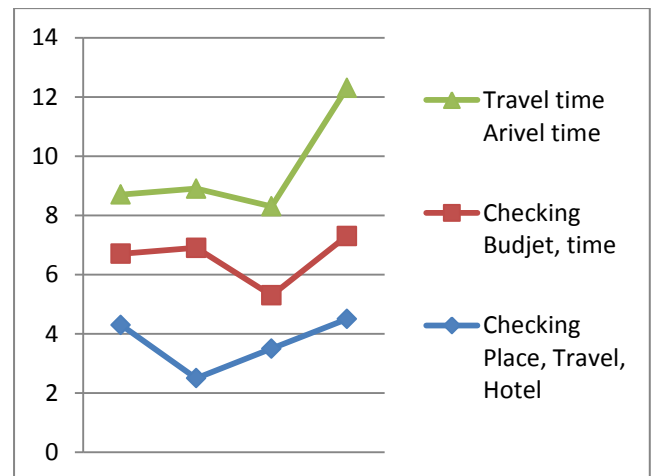
Hence our project work on successfully compare to the earlier heterogeneous algorithm will improve the result in our algorithm.

IV. CONCLUSION AND FUTURE SCOPE

This system '**Hybrid Semantic Ontology Data (HSOD) Analysis algorithm for Heterogeneous Tourism Information**' has solved all the problems existed in previous systems. Since this system has doubled the level of Pruning the links. Thus the user feels free to use the system and he can be sure that his credentials have been protected. As the system gives the opportunity to get correct service from the correct providers. The system is simple and user-friendly and they can avail the services easily. This system has very use full to the foreign tourist it gives the latest and available service and it gives direct service from the service provider but it takes a time to get a result when it is make in cloud and write like some web service in the cloud the user can easily access any without any traffic and any disturbance.

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