SMART TOURISM RECOMMENDER SYSTEM

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Abstract: Recommender systems are using in many different domains. We mainly focuses on the applications of tourisms A widely searched of the conferences since many years has been made. We provides a detailed and up to-date survey of this field, considering the different kinds of ways, the and diversity of recommendation algorithms, the functionalities offered by these systems and their use of Artificial Intelligence techniques. Our survey also provides some guidelines for the tourism recommenders and suggests the most promising areas of work in this field for the upcoming years. For the access to easy and accurate information is the heart of our system, so in this era of the Internet information overload has become a common phenomenon and as such a serious issue for those searching for appropriate information. Furthermore, various researches have been carried out on how to get information on tourism website more effective. So smart intelligent tourism management system tries to overcome the gap by noting what a tourist perceives as relevant, in terms of connecting to tourism products in tourism websites. This study focuses mainly on content because it is seen as the major factor associated with an effective and smart website.
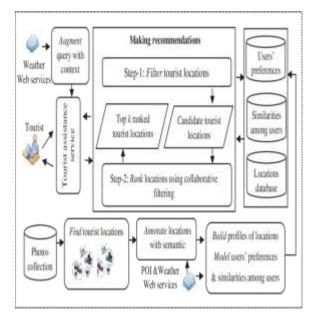
1. INTRODUCTION:

The amount of information available on the internet and its number of users have experienced a huge increase in the past last decade. All this information may be particularly useful or necessary for those users who wishes to plan for visiting an unknown destination. Information about travel destination and their associated resources such as Accommodation, restaurant, Museums, Transports or events among other is commonly search for tourist in order to plan a trip. However list of possibilities offered by web search engines (or even specialized tourism sites) maybe vast. The growth of this long list of option is very complex and time consuming for tourist in order to select the one that fits better with their need. Modern tourists avoid fixers to make their own decisions about their trip, choose certain alternatives to perform booking and pay for their order directly. Modern tourists are advanced not only by the desire to reduce costs, but also the realities of the information society in which the necessary information is available. Nowadays tourist trusts less in advertising brochures of travel agents, does not want to pay for expensive travel guides. At the planning stage of his journey tourist usually tends to make his own analysis for information on the of alternative travel routes. In adventure large information portals, online council feedback and comments of those who have visited this trip, photos and videos submitted are freely available. This main source of finding & distributing current, complete accurate traveling information is increasingly becoming a web space. Nowadays the actual problem is not the traditional multi filtering search of relevant information, but search

into be person oriented, personalized, adapted to the individual needs of particular "sophisticated" users need information. User's searches request for urgent information resources in extended web environment occasionally is faced with the problem of selection (filtering) of useful data in this field

2. Architecture:

3. Challenges:

There are many challenges in this field of recommendation systems here we are explaining some of them: Algorithms scalability with big and real-world database, As the research in the development of recommendation system is growing largely in now a days, a major issue comes into existence is how to implement recommendation techniques in real world systems and how to solve the problem of large and dynamic datasets. Sometimes an algorithm works well when tested offline on small dataset but becomes inefficient or inappropriate when used on large real world datasets.

Dedicated recommendation systems: Dedicated recommendation systems generate recommendations automatically without clearly asked. A recommendation system can become dedicated or aggressive if it detects understands requests hence can predict not only know what to recommend but when and how to push recommendations **Privacy Protecting recommender systems:** Recommendation systems extract/uses user data to generate personal recommendations. Therefore, there is a need to protect this user data or information from unauthorized access.

Distributed recommender systems that operate in open networks: Majority of recommendation system follows client-server architecture which can suffer from all problems of centralized systems. Cloud computing can

provide opportunity to use more flexible models or systems for better recommendation systems. Diversity of the items recommended to a target user: User will get/receive better recommendations if there is wide range in the items included. There are many situations or circumstances when user wants to explore the items. So, there is a need to define the type of the range and how to combines goal with accurate recommendations.

4. Mathematical Model:

Naive Bayes is a simple technique for constructing classifiers: models that assign class labels to problem instances, represented as vectors of feature values, where the class labels are drawn from some finite set

It is not a single algorithm for training such classifiers, but a family of algorithms based on a common principle: all naive Bayes classifiers assume that the value of a particular feature is independent of the value of any other feature, given the class variable. For example, a fruit may be considered to be an apple if it is red, round, and about 10 cm in diameter. A naive Bayes classifier considers each of these features to contribute independently to the probability that this fruit is an apple, regardless of any possible correlations between the color, roundness, and diameter features.

An advantage of Naive Bayes is that it only requires a small number of training data to estimate the parameters necessary for classification

Probabilistic model

Abstractly, naive Bayes is a conditional probability model: given a problem instance to be classified, represented by a vector

$$\mathbf{x} = (x_1, \ldots, x_n)$$

Representing some n features (independent variables), it assigns to this instance probabilities

$$p(C_k \mid x_1, \ldots, x_n)$$

For each of K possible outcomes or classes C_k.

The problem with the above formulation is that if the number of features n is large or if a feature can take on a large number of values, then basing such a model on probability tables is infeasible. We therefore reformulate the model to make it more tractable. Using Bayes' theorem, the conditional probability can be decomposed as

$$p(C_k \mid \mathbf{x}) = \frac{p(C_k)\, p(\mathbf{x} \mid C_k)}{p(\mathbf{x})}$$

In plain English, using Bayesian probability terminology, the above equation can be written as

$$\text{posterior} = \frac{\text{prior} \times \text{likelihood}}{\text{evidence}}$$

In practice, there is interest only in the numerator of that fraction, because the denominator does not depend on {\displaystyle C} C and the values of the features {\displaystyle x_{i}} x_{i} are given, so that the denominator is effectively constant.

Constructing a classifier from the probability model

The discussion so far has derived the independent feature model, that is, the naive Bayes probability model. The naive Bayes classifier combines this model with a decision rule. One common rule is to pick the hypothesis that is most probable; this is known as the maximum a posteriori or MAP decision rule. The corresponding classifier, a Bayes classifier, is the function that assigns a class label

$$\hat{y} = C_k$$

For some k as follows:

$$\hat{y} = \underset{k \in \{1,\ldots,K\}}{\operatorname{argmax}}\ p(C_k) \prod_{i=1}^{n} p(x_i \mid C_k).$$

5. Summarized Results:

Basically we have implemented a website that is very much efficient for providing a better a way to recommend a specific or required location to user as per user's requirements.

We have used a Naïve Bayes algorithms for classifying the users input or user's requirements so as to provide a better and friendly assistance or desired result or output

6 .Conclusion and Future Scope:

Recommendation systems proved themselves to be a best solution for handling problem of the information overload or overwhelming nature. They help in making decisions by quality time and energy. Future work will focus on enhancement of the existing methods or techniques and algorithms used so that the recommendation systems predictions and recommendations quality can be enhanced.

This kind of system is really helpful to recommend the better locations and expected or desired results

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