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TOURIST RECOMMENDATION SYSTEM USING DECISION TREE ALGORITHM

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ABSTRACT

As a result of the rapid development of Internet technology, every individual now has their own mobile devices and computers, which allows them to get information on tourist destinations. When it comes to suggesting a selection for their vacation trip, the Tourist Recommended system plays an important part. When a person visits a certain area, they will provide feedback for each visit; this will have an effect on the decisions that new users make. Every single algorithm that is now in existence, such as collaboration or content filtering algorithms, makes use of the most recent user experience data in order to recommend the most suitable hotel. If the present user does not have any data from their previous experiences, then these algorithms will not operate. Utilizing the feature selection method in conjunction with the C4.5 decision tree technique allows us to circumvent the difficulties described above. The recommendation system that is being suggested is being built in order to provide suggestions for all other sites that are worth visiting.This Tourist Recommended System will be of more assistance in recommending destinations to visitors who are looking for places that are unknown to them. It does this by taking into account two elements, such as ratings and points of interest, and then determining the optimum location based on the values of each associated feature. [8] was the year when C4.5, an extension of ID3, was developed. Due to the fact that C4.5 attempted to address the primary issues of ID3, it was selected for this investigation. [9] ID3 The C4.5 method that Quinlan developed before may be used for classification purposes. This particular decision tree, known as C4.5 Decision Tree, is classified as Supervised Learning. The values of the characteristics are used as input by the Decision Tree, which then proceeds to provide the projected location based on the features that have been chosen.

I. INTRODUCTION

Every day, many people visit the e-commerce website to search required information such as well-known touristic locations around the world. People carries personal electronic devices such as mobile phone, laptops etc; are being able to gather information about their surroundings, which is used by the so-called tourist recommendation system to suggest touristic attractions, based on context factors such as location, etc. The statistics shows, Revenue of leading online travel Agencies worldwide 2018. In 2018 year, Booking was the leading travel agency with a yield of approximately 14.53 billion U.S. dollars TripAdvisor have 37.7 million of visitors. (i.e April 2018 by monthly users) Booking.com has 20.1 millions of visitors. The usage of internet browser to read online reviews is improved in 2019 than the 2018. 51% of people were reading the reviews in a daily bases. 36% of people are always agreed with the online review. 18% are regularly viewing, 27% are occasionally views the online review. 18% are not liked to view. As per the review survey of 2019 done by bright local website, Online reviews were impacting on decision making of

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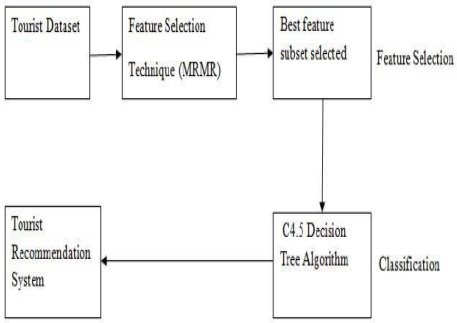
consumers or visitors as per the statistics of 2019, 91% of users are agree with the online reviews. The tourism industry is an extremely important sector on a global scale, East Europe the travel and tourism sector has a positive impact on economy directly contributing an estimated 782billon euro's to GDP in 2018. Europe is the global leader in international tourism with over 600 million tourists arriving in the region each year. Leading European countries in the travel and tourism in 2019 are Spain, Germany, France, UK,

Switzerland, Austria, Portugal and Netherlands and Sweden. Tourist recommendation system will suggest the locations for visitors. Most of the earlier TRS have concentrated on approximate of selection the destination, activities (eg; restaurants, hotels) based on the user preference and interests. They are lacking sparseness adaptability, correctness. Perhaps the best test in building up a TRS that give customized proposals of traveler objections is to improve the vacationer decision making process.

In the proposed system the tourist recommendation system will give the best location for the visitor. In order to achieve this, it requires a deep understanding of the tourist decision-making and develops novel models for their information search process. To develop this system initially we required a dataset of east Europe, feature selection methods, Minimum Redundancy Maximum Relevance (MRMR) algorithm [10] and decision tree of supervised machine learning for classification. C4.5 decision tree is for translation. The proposed TRS has three main innovations. Firstly, two feature selection methods are used to remove the unnecessary (both irrelevant and redundant) inputs into the system and to decrease the model complexity. Secondly, a decision tree C4.5 is utilized as a classifier to recognize the tourist destination selection process. Tourists can discover the travel information on sites, forums, websites of points of interest etc. However, information overflow can occur on the web as there is as yet an absence of spotlight on the utilization of recommender innovation in the travel industry field. During a trip, tourist should have the option to acquire visit data in a convenient way, whenever there are any changes in their planned tour. Recommendation system which provides tour information which is more useful for users, to succeed with the got information. There is additionally expanding interest for more data on local area attractions, for example, nearby food, shopping spots, spots of intrigue, etc during the visit. A tool to mine items and/or collect user's opinions to help users in their search process and suggests items related to their preferences

II. SYSTEM ANALYSIS

SYSTEM ARCHITECTURE



EXISTING SYSTEM

When we want to plan a tour for holidays or general visit, very first we take a help from travel agencies then we need to plan according to travel agencies. [2]But, because of this we face some difficulties like our vacation get start but

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travel agency package date is at the end of our holiday or in our working time. Existing system is generic system, i.e. travel recommendation might be same for some of sightseer. It comes up with plans according to travel agencies, which is not match with sightseers need and interest. At some point travel services guarantees great quality assistance to vacationer, yet that doesn't occur really and traveler face numerous issues. Hotel recommendation system for tourists. Recommends hotels with the consideration of online reviews to make easier to decide the best hotel. It describes the hotels related information such as Hotel address, Average score(ratings), Hotel name, Reviewer nationality, Review (sentiments).

PROPOSED SYSTEM

This paper proposes a TRS that propose destinations to tourist to solve the mentioned challenges. The proposed TRS is processed offline utilizing the Data Mining (DM) measure. This includes variables selection by using feature selection methods, decision making by using decision tree C4.5, and translation of the decision tree. The proposed TRS has three main innovations. Firstly, two feature selection methods are used to remove the unnecessary (both irrelevant and redundant) inputs into the system and to decrease the model complexity. Secondly, a decision tree C4.5 is utilized as a classifier to allow the sightseers destination selection process. Lastly, the proposed system uses real world data that have been collected by us from crawled tripadvisor of East Europe. To overcome from above problem C4.5 decision tree algorithms which take experiences of previous users past experience input. To implement decision tree model we need to have dataset and this dataset sometime will have empty or garbage values and this values will put bad effect on decision tree model so we can remove such empty or garbage values by applying pre-process techniques. And then build a decision tree model, if new user enter his requirements then decision tree will predict best location based on his given input. Assume that users with similar interests should favorite to the similar things as one another. On the basis of Decision tree, recommendation process of tourist attractions can be partitioned into three stages.

.i. The rendering of user (tourist) information. The visiting history of pervious user review of appeal should be investigated and exhibited. ii. The generation of neighbor users (tourists). The similarity of sightseers can be figured according to the visiting history information and the MRMR algorithm presented by us. A neighbor tourist list can be computed on the basis of known similarities.

iii. The generation of attraction recommendations. Top appeal will suggest to the tourist as stated by the visiting history of his neighbors.

ADVANTAGES OF PROPOSED SYSTEM

1) To implement decision tree model we need to have dataset and this dataset sometime will have empty or garbage values and this values will put bad effect on decision tree model so we can remove such empty or garbage values by applying pre-process techniques. 2) And then build a decision tree model, if new user enter his requirements then decision tree will predict best location based on his given input

III. IMPLEMENTATION

Modules:

The system comprises of 3 major modules with their sub-modules as follows:

1. **Admin:**

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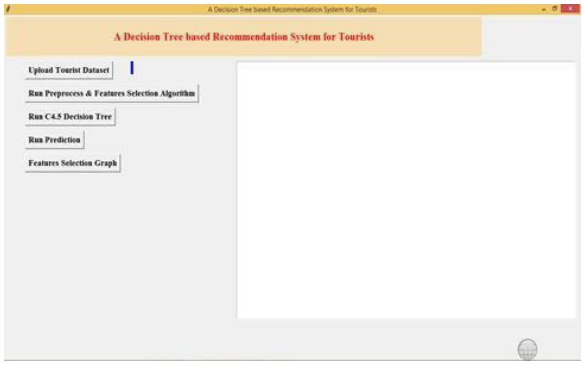
- **Login:** Admin can login in his personal account using id and password.
- **Add Location:** Admin can add new Locations.
- **View Location:** Admin can view add locations.

2. **User:**

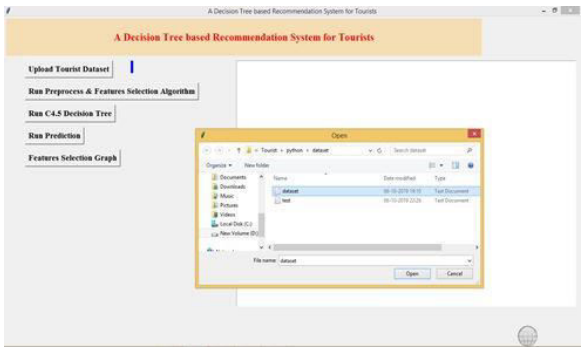
- **View Location:** User can view the location. **View Opinion Analytics:** User can view the opinion analytics of the particular location**.**

IV. SCREEN SHOTS

Double click on 'run.bat' file to get below screen



In above screen click on 'Upload Tourist Dataset' button and upload dataset file



After file upload will get below screen with all dataset details

In above screen all users past experience dataset loaded and total 12 attributes are there in the dataset. Now click on 'Run Preprocess & Feature Selection Algorithm' button to remove empty values and reduce attributes size.

In above screen after applying MRMR features size reduces to 3 and only those attributes will be used whose column is TRUE and FALSE column will be ignore. Now click on 'Generate C4.5 Decision Tree Model' to build model

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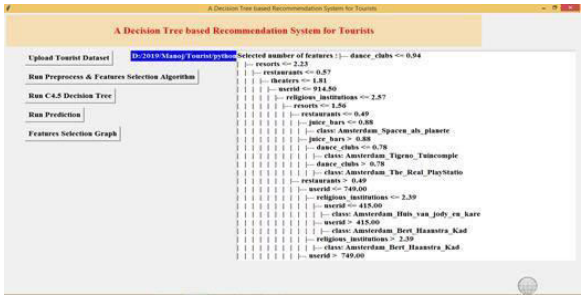
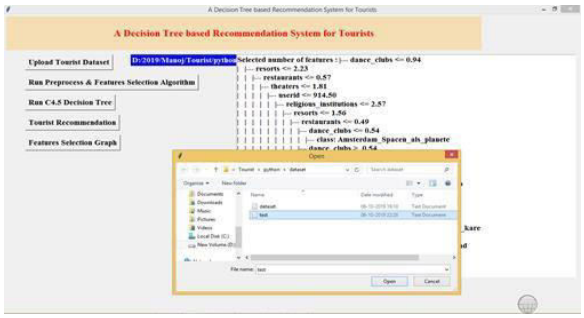


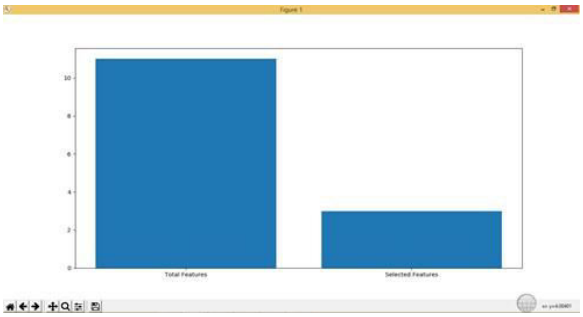
In above screen we can see using IF and ELSE statement decision tree has generated model. If > it will choose some decision if < it will choose some other decision. Now click on 'Tourist Recommendation' button to upload test file with no location name and application will predict it



In above screen i am uploading test file now click open to get predicted or recommended location. In test file location name is not there application will give

In above screen after uploading test data we can see all values are there in test data but it not has location name and base on test values application predicted or recommend location name.

Now click on Features Selection Graph button to get below graph



In above graph x-axis contains total features and MRMR selected features and y-axis represents count of features and in above graph we can see after applying MRMR technique features size reduces to 3.

V. CONCLUSION

In an effort to address the site TRS's present difficulty, a decision tree-based tourist recommendation system has been used in this project. Decision rules were taken out of decision trees. It makes use of fewer features in its trial findings to validate the relevance of the suggested TRS. The suggested TRS meets the needs of travelers who want to visit or are already in the European city. The information that forms the basis of the system includes ratings and reviews for over three characteristics. The travel agency's preferences will determine the travel date, number of days, hotels, and other details. As a result, travelers may encounter challenges such as vacations ending early or travel dates falling during working hours. These issues can be resolved by using the Trip Advisor website, which recommends tourist locations

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based on travel agency plans. The data mining measure is used to process the suggested TRS offline. This includes the use of feature selection methods to select variables and machine learning decision trees to classify data based on user interest. When a new user enters their requirements, the decision tree uses that input to predict the best location. This allows tourists to tailor their vacation plans to their interests.

To improve the data sets' classification accuracy rate, other classifier types may be taken into consideration for future research. Additionally, an interactive and adaptable user interface as well as a front-end web application will be developed and put into use.

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