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USING PHOTOGRAPHS FROM THE USER'S SOCIAL NETWORK PROFILE, A TRAVEL ROUTE SUGGESTION ALGORITHM IS DEVELOPED.

SAMUDRALA NIKHIL [1], CHIKKA RAHUL GOUD[2], MALLADI DURGA PRASAD[3], SANGAM SANDEEP[4], PAMPALLE MABUHUSSAIN[5], Dr P NIMITHA[6],

[1,2,3&4]Ug Scholar, Department Of Cse(Ai&Ml), Narsimha Reddy Engineering College (Ugc-Autonomous), Maisammaguda (V), Kompally, Secunderabad, Telangana-500100

[5]Assistant Professor, Department Of Cse(Ai&Ml), Narsimha Reddy Engineering College (Ugc- Autonomous), Maisammaguda (V), Kompally, Secunderabad, Telangana-500100

Assistant Professor[6], Department Of Civil Engineering, Narsimha Reddy Engineering College (Ugc- Autonomous), Maisammaguda (V), Kompally, Secunderabad, Telangana-500100

ABSTRACT

People of all ages find that travelling is one of the most fun things they can participate in. It is always seeking for new and unique ways to personalize travel suggestions to the requirements of its consumers, and it is continually hunting for these solutions. The objective of the recommendation model that we have suggested is to provide suggestions for trip destinations based on photographs from the user's social network account as well as the metadata that is linked with the various photographs. The data that is utilized in the model preparation processes, as well as the technologies and methodologies that are applied in the model, are very important factors in the implementation of such recommendation models. For the purpose of the model preparation, the recently gathered information from the Instagram accounts of the users was used. Object detection, similarity measures, classification, and data clustering are the four approaches that are used in the recommendation system which is based on the combination of these four methods. Among the novel aspects of the proposed recommendation model is the fact that it uses different data (photos from Instagram) to make recommendations regarding travel directions, that it defines a new combined method, that it integrates the results of similarity measurement and SOM application into a single recommendation, and that it estimates the parameter impact for various components of the recommendation model. Following the conclusion of the outcomes of the recommendation model, a proposed assessment method was used to draw conclusions, and as a consequence, the names of the nations that are advised for vacation have been suggested. The results of the proposed recommendation model are encouraging, and the validation results show that on average, 63 percent of the users who visited countries match the recommendations that were provided for the trip directions. On the other hand, the accuracy of recommendations, which match user visited countries but are not presented in the photos for recommendation estimation, is not very high. a mean of 96% was achieved. Despite the fact that the recommendation method is totally automated and based on machine learning, the accuracy performance is extremely favorable. The incorporation of the picture information (location) may potentially result in an improvement in the accuracy of the model over the course of time.

1.INTRODUCTION

According to a number of statistics studies conducted all around the globe, a significant number of individuals were unable to afford to travel during the pandemic scenario. Consequently, when the situation around COVID improves and a variety of limitations are lifted, individuals begin to travel once again. Due to the fact that it is one of the hobbies that people like the most at various ages, it is not only a rich area for company, but it is also a market that is also very competitive. Therefore, customized advertising is a highly efficient method for business owners of travel agencies to boost their chances of successfully locating new consumers. This occurs as a result of the fact that a possible user is automatically picked for a journey that may be of interest to him. There are times when it might be challenging to determine which trip destination is the most correct for a certain user. Nevertheless, studies have shown that there are commonalities across user groups that serve as a basis for determining the kind of trip that a user group could like [1]. However, in order to execute a recommendation system in a manner that is qualitative, the data that is utilized for such a system are quite important. Despite the fact that recommendation systems are used extensively in a variety of domains [2, 3], [4], travel recommendation systems are confronted with the challenge of ensuring the correctness and need of labeled data [5]. This is despite the fact that a significant number of trip recommendation systems now depend on information that is supplied by social networks and other platforms on user interests and travel [6, 7], [8]. Some of the systems include data from a tremendous number of different systems, and some of them even incorporate data from Internet of Things (IoT) smart devices [9]. The facts do not indicate that the customer was not pleased or even unhappy with his or her trip; yet, it is always possible that the customer did not have a positive experience. Since this is the case, an effort is made to solve this issue by including as much data as is feasible [10] or by incorporating interactive user surveys as supplementary information [11], [12]. For the time being, Instagram, which is one of the most popular social networks, has more than one billion members all over the globe. Instagram's primary advantage over other social networks is that it allows users to submit photographs more often than other platforms. Photos are associated with activities such as travel, hobbies, and so on. Therefore, the examination of consumer photographs that are accessible to the public may provide travel companies with the information that is required to allow them to give the consumer with the particular kind of vacation that is most suitable for them. According to the findings of the study conducted by Linaza et al. [13], it was also noticed that photographs are more likely to represent the user's perspective than the replies to surveys or even commonalities with other users. To the extent that contemporary data analysis techniques, such as data classification and clustering, are suitable for proposing various kinds of travel to users based on images that they have shared on their social networks, the primary purpose of this article is to lessen the amount of ambiguity that exists. The purpose of the experimental inquiry would be to investigate the current solutions, evaluate them in relation to one another, and then suggest the model that seems to have the greatest potential by

incorporating the various outcomes of the approaches that were evaluated. Rather than relying just on post metadata, the concept of a trip suggestion need to be made on the basis of the items that are recognized in the Instagram profile images of the user. Not only will this make it possible to provide travel direction suggestions based on favorite activities, but it will also make it possible to do so based on geographical location alone. When put into action, the implementation of such a suggested recommendation model will improve the likelihood that the travel agency would actually choose at least one of the several trips that are shown to the customer. This would fulfill that person's requirements. As a consequence of this, the advertising that is provided by the travel agency would be used in a more intentful manner, and the customer would be presented with a collection of travel options that are more in line with his expectations. Additionally, the level of happiness that the customer has with the experience would rise in proportion to this measure. The purpose of this research is to provide a recommendation model that is based on the outcomes of a mix of supervised and unsupervised approaches. For the first step, data from Instagram users has been gathered and pre-processed with the help of Microsoft Azure in order to recognize objects in photographs [14]. There are a total of 4683 characteristics that make up the final pre-processed data. Four of these attributes are metadata, while the remaining attributes are focused on object recognition in the photographs. It is planned that in the future, the data that was gathered would be used to train certain components of the recommendation model. This set of components will be able to recognize countries that users have previously been to and will also be able to recommend new places for users to go to. Both the Python geopy library [28] for location identification based on the written description of the place and the classifier of things detected in the images have been used in order to ascertain which countries users have previously visited. This has been done in order to discover which countries users have already visited. For situations in which the data item that is being fed into the recommendation model does not have any metadata or when the list of countries that have been visited has not been established, similarity distance and self-organizing maps have been used to identify potential nations based on the outcomes of object identification efforts. The outcomes of the suggested model have been finished by merging the results of clustering and similarity distance into a final recommendation model. This has helped to bring about the conclusion. The model takes into account several features of the similarity distance and clustering findings in order to produce the ultimate trip destination suggestion list for the user based on the user's past vacation photographs. In Section III, a more specifically comprehensive explanation of the recommendation model that has been developed is offered. One of the noteworthy aspects of the recommendation model that has been offered is that it is completely automated and does not call for any adjustments to be made manually. Through the use of artificial intelligence techniques, we are able to retrain the model over time, therefore increasing its precision. To differentiate itself from the majority of other suggested models, this one does the suggestion by extracting data from

photographs. Additionally, the metadata of each photograph has been added and examined, if it is deemed acceptable. It has never been stated previously that such input data for trip direction and country suggestion was available. The scientific innovation of the paper is that it combines a few well-known approaches to conduct suggestions utilizing not only the well-known similarity distance, but also self-organizing maps. This combination is what makes the manuscript distinctive in the scientific community. The self-organizing maps are often used for the purpose of clustering or visualizing the data in a generic form. However, by delving further into the structure of the self-organizing maps, the neighboring rank may be tweaked and customized in order to determine which data items in the self-organizing maps are those are most closely associated to one another. In this paper, we updated and adapted the use of neighboring rank in the self-organizing map cell by combining it with similarity measures in order to locate the data item that is the most comparable to the new data item that was fed into the model. It is via this method that the suggestions of the nations are offered. In addition, self-organizing maps have been paired with dimensionality-reduced approaches since they have been shown to have challenges in terms of performance when employing high-dimensional data. The evaluation measure that has been provided makes it possible to offer a trip advice and to summarize the findings that were obtained using all of the respective approaches. The suggestion model that has been developed has the potential to be advantageous to companies, and it can be readily deployed on websites and adapted to specific needs.

2.LITERATURE REVIEW

TELL ME WHO YOU ARE AND I WILL TELL YOU WHERE TO GO: USE OF TRAVEL PERSONALITIES IN RECOMMENDATION SYSTEMS. The assumption that user preferences need to be collected in the most precise manner possible in order to be able to deliver relevant suggestions is the foundation upon which the current research and design efforts in destination recommendation systems are built. On the other hand, guiding the user through a sequence of perplexing diagnostic inquiries is often laborious and, as a result, discourages usage. Within the context of this study, travel personality types are investigated as a potential shortcut to the classification of users. According to the findings of this research, it seems that the travel personality types that were chosen by the individuals who participated in the survey may, in fact, be correlated with certain travel habits. It is demonstrated that there are implications for future study as well as for the design of systems.

MOVIES RECOMMENDATION SYSTEM USING COLLABORATIVE FILTERING AND KMEANS,

This study is being conducted with the intention of developing a movie recommender system by using the collaborative filtering approach and Kmeans methodology. In the realm of recommender systems, the algorithm that has shown to be the most effective is called collaborative filtering. The term "recommender system" refers to an intelligent system that works to assist users in discovering goods that they may find interesting. We provide a technique that is based on user clustering in order to create a suggestion for the active user by using a

novel approach. This study takes into consideration the users m, where m is the number of users, and points in n-dimensional space, where n is the number of items. For the purpose of classifying people according to their interests, we used the k-means clustering technique. Both the conventional method of collaborative filtering and our own technique are analyzed and compared. According to the findings of our investigation, the suggested algorithm is not only more precise than the conventional one that is now in use, but it also requires less time than the approaches that were previously in use.

'HOTEL RECOMMENDATION SYSTEM BASED ON REVIEW AND CONTEXT INFORMATION: A COLLABORATIVE FILTERING APPRO. As a result of the proliferation of various forms of online expressions, such as reviews, ratings, and recommendations, it is becoming more challenging to ascertain the preferences of users with regard to the items. Online users of travel booking services have the ability to produce and disseminate a significant number of evaluations over the internet. Consumers now have access to a collection of Recommendation Systems (RSs) that may assist them in filtering things based on their preferences via collaborative efforts. The based method, which is known as filtering (CF), is one of the most often used approaches in the RS. However, it is also plagued by a number of basic issues, including data sparsity, cold start, scarcity, and rating bias. An strategy known as context-aware hotel recommendation (CAPH) is proposed in this research paper. This approach makes use of information that is aware of the context in order to give a tailored hotel recommendation system. The purpose of this study is to investigate the possibility of suggesting hotels depending on the characteristics of the hotel and the kind of tourist. There is a collection of experimental data from Tripadvior.com that takes place between the years 2015 and 2016. The user-based and item-based CF model will be compared with the system accuracy assessments that will be carried out once the evaluations have been completed.

A CONTENT-BASED GOODS IMAGE RECOMMENDATION SYSTEM. When it comes to e-commerce photographs, the information that they provide might vary, and various users may concentrate on different aspects of the same image for completely different reasons. As a result, the research that is being done on suggestion by computers is becoming more significant. The retrieval of photos based just on keywords, on the other hand, is plainly insufficient for large numbers of resource images. The purpose of this study is to examine a recommendation system for photographs of products that is based on the content of the photos. Visual representations of goods have a backdrop that is reasonably consistent and may be used for a broad variety of purposes. The advice is broken down into three distinct phases. Initially, the backdrop is removed from the picture as part of the pre-processing step. It is suggested that a weighted representation model be used to represent the picture in the second place. After the separated features have been extracted and normalized, the weights of each feature are calculated based on the samples that the users have looked through. The third step is to offer a feature indexing scheme that is based on the representation that has been presented. Indexing is

accomplished via the use of a binary tree, and a technique for updating the binary tree is also provided. In conclusion, a features combination searching technique is responsible for providing the photographs that are suggested. Our algorithm has been shown to be capable of achieving high accuracy in proposing comparable products photos while maintaining a high rate of speed, as shown by experimental results on a genuine goods image database.

A SHORT SURVEY OF RECOMMENDATION TECHNOLOGIES IN TRAVEL AND TOURISM. One of the most successful application areas of artificial intelligence is recommendation, which has a long history of such success. One of the factors that led to the rise in popularity of recommendation systems was the requirement that e-commerce platforms, such as Amazon.com, had to enhance the accessibility of enormous product and service assortments. The purpose of this study is to demonstrate three fundamental technologies that are capable of enabling the tailored recommendation of items and services. We present a discussion on the use of such technologies in the tourism sector (for example, the recommendation of travel destinations), with a particular emphasis on mobile environments. This is done in order to take into account the topic of this special issue.

3.EXISTING SYSTEM: The construction of a recommendation system that is based on the images that users have uploaded and that recommends a trip location in accordance with those photos involves the compatibility of many technologies and approaches. [15] An examination of recommendation systems in the tourist industry reveals that a growing number of these systems are dependent on solutions that include the processing of large amounts of data and artificial intelligence programs. A significant number of the user-based travel recommendation systems that are now in use are based on the discovery of a particular place on a photograph or a particular user that is detected on a photograph [16]. On the other hand, as part of our investigation, we looked at the degree to which images portray everyday things like animals, notes, food, and other things. This occurs due to the fact that images have the potential to represent the user's profile and interact with the nation that the user is interested in. To this day, the issue of object recognition in images is also an area that is subject to a great deal of research. The most important thing is to present a list of things that have been identified together with the likelihood of their proper identification [17]. In the event that a list of things that have been identified in the photograph is available, the list may be used in categorization activities. The data item might be used to discover a nation that is comparable to the one on this list. The outcomes of the object detection are affected by a number of different aspects, including the method that was used and the manner in which it was trained. An examination of the scientific literature revealed that there is no dataset that is accessible to the general public that could be used for the purpose of developing a recommendation model that is based on the items that are seen in the photographs. In most cases, each dataset is centered on a distinct aspect, and as a result, they are not considered appropriate. The process of putting together a dataset and getting it ready for study is not a simple one. The reason for this is that the precision of

contemporary artificial intelligence solutions is extremely reliant on the data that is utilized for training and the preparation of these solutions. There are situations in which the inclusion of an excessive amount of background in a judgment does not improve the accuracy of the conclusion but rather decreases it [18]. On account of this, it is essential to strike a balance between the completeness of the data and the redundancy of the information. When it comes to travel recommendation systems, the categorization of various levels is a helpful solution to the issue of dealing with redundant data [19]. This issue is frequently brought about by the extremely high level of integration between various data sources [20], but it can also occur in the field of object detection, where the objects depicted in the photographs may be too specific to be identified (for instance, a particular dish is identified rather than simply a category of food).

In Further to the development of multilayer classifiers, a knowledge graph base [21] and interfaces between the items that are being examined are also being constructed. In several scientific investigations, recommendation systems make use of well-established methodologies. The calculation of the similarity distance between vectors is an example of an ancient approach that is still implemented often. There is a wide range of different ways to quantify similarity. In situations when pair-wise similarity has to be measured, effectiveness is a reliable method that may be used; however, new heuristic measures are currently being developed. Specifically, the performance of three newly formed similarity measures, namely the difference-based similarity measure, the hybrid difference-based similarity measure, and the triangle-based cosine measure, has been evaluated in the paper that was written by Ali et al. [22]. A greater amount of research is being conducted in which fresh metrics are being developed and examined [23], 25]. It is possible to draw the conclusion, on the basis of the data that were obtained, that the effectiveness of the more recently developed measures does not vary considerably from that of the more conventional similarity measures. In most cases, these measurements are used for certain activities. In most cases, the findings of the similarity distance are coupled with the different classification and clustering methods in order to construct the recommendation model. Some examples of classic classification methods include the support vector machine, decision trees, random forests, and even deep learning techniques such as long short-term memory [26]. [25] Additional examples include the support vector machine. K-means, hierarchical clustering, and K-nearest neighbor are the three data clustering methods that are used the most often [27]. There are also a great number of data clustering algorithms. It should come as no surprise that there are a great number of various combinations that may be used to combine these different kinds of procedures in order to generate a suggestion that is very accurate.

3.1. DISADVANTAGES

One of the disadvantages is that there is no COMBINED MODEL FOR TRAVEL DIRECTION RECOMMENDATION system that is not already in existence. Another disadvantage is that it may be challenging to determine which travel destination is the most correct for a certain user in an existing system.

3.2. PROPOSED SYSTEM

The purpose of this research is to provide a recommendation model that is based on the outcomes of a mix of supervised and unsupervised approaches. For the first step, data from Instagram users has been gathered and pre-processed with the help of Microsoft Azure in order to recognize objects in photographs [14]. There are a total of 4683 characteristics that make up the final pre-processed data. Four of these attributes are metadata, while the remaining attributes are focused on object recognition in the photographs. It is planned that in the future, the data that was gathered would be used to train certain components of the recommendation model. The ability to recognize nations will be provided by these components. that users have previously visited and recommend additions to nations that users should go to. For situations in which the data item that is being fed into the recommendation model does not have any metadata or when the list of countries that have been visited has not been established, similarity distance and self-organizing maps have been used to identify potential nations based on the outcomes of object identification efforts. The outcomes of the suggested model have been finished by merging the results of clustering and similarity distance into a final recommendation model. This has helped to bring about the conclusion. The model takes into account several features of the similarity distance and clustering findings in order to produce the ultimate trip destination suggestion list for the user based on the user's past vacation photographs. An even more in-depth explanation of the recommendation model that has been offered is included in the system that has been proposed. One of the noteworthy aspects of the recommendation model that has been offered is that it is completely automated and does not call for any adjustments to be made manually. Through the use of artificial intelligence techniques, we are able to retrain the model over time, therefore increasing its precision. To differentiate itself from the majority of other suggested models, this one does the suggestion by extracting data from photographs. Additionally, the metadata of each photograph has been added and examined, if it is deemed acceptable. It has never been stated previously that such input data for trip direction and country suggestion was available. The scientific innovation of the paper is that it combines a few well-known approaches to conduct suggestions utilizing not only the well-known similarity distance, but also self-organizing maps. This combination is what makes the manuscript distinctive in the scientific community. The self-organizing maps are often used for the purpose of clustering or visualizing the data in a generic form. However, by delving further into the structure of the self-organizing maps, the neighboring rank may be tweaked and customized in order to determine which data items in the self-organizing maps are those are most closely associated to one another. In this paper, we updated and adapted the use of neighboring rank in the self-organizing map cell by combining it with similarity measures in order to locate the data item that is the most comparable to the new data item that was fed into the model. It is via this method that the suggestions of the nations are offered. In addition, self-organizing maps have been paired with dimensionality-reduced approaches since they have been shown to have challenges in terms of performance

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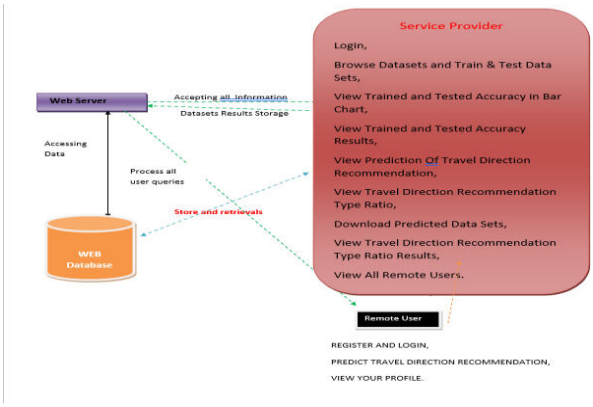
when employing high-dimensional data. The evaluation measure that has been provided makes it possible to offer a trip advice and to summarize the findings that were obtained using all of the respective approaches. The suggestion model that has been developed has the potential to be advantageous to companies and can be readily implemented on websites and adapted to meet specificneeds.

3.3.ADVANTAGES

The purpose of this proposal is to offer a recommendation model for user travel locations that is based on photographs from Instagram social profiles and the metadata associated with those photos. Data scraping from users' social network accounts, object identification in user images and acquiring the metadata of each photo, detection of potential countries to visit, detection of countries that have previously been visited, and suggestions based on all of the data acquired are the primary components of the model.

4.IMPLEMENTATION

4.1.ARCHIRECTURE



4.2.MODULES

SERVICE PROVIDER

In this module, the Service Provider has to login by using valid user name and password. After login successful he can do some operations such as Browse Datasets and Train & Test Data Sets, View Trained and Tested Accuracy in Bar Chart, View Trained and Tested Accuracy Results, View Prediction Of Travel Direction Recommendation, View Travel Direction Recommendation Type Ratio, Download Predicted Data Sets, View Travel Direction Recommendation Type Ratio Results, View All Remote Users.

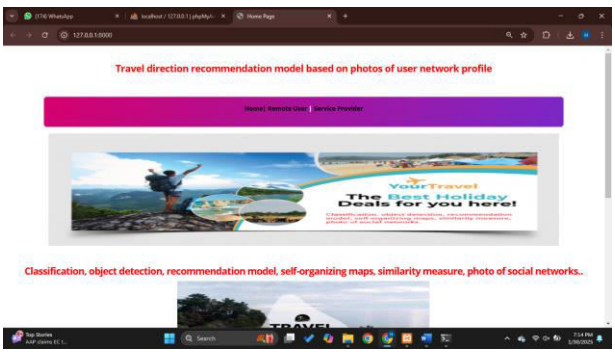
VIEW AND AUTHORIZE USERS

In this module, the admin can view the list of users who all registered. In this, the admin can view the user's details such as, user name, email, address and admin authorizes the users.

REMOTE USER

In this module, there are n numbers of users are present. User should register before doing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password. Once Login is successful user will do some operations like REGISTER AND LOGIN, PREDICT TRAVEL DIRECTION RECOMMENDATION, VIEW YOUR PROFILE.

5.RESULTS



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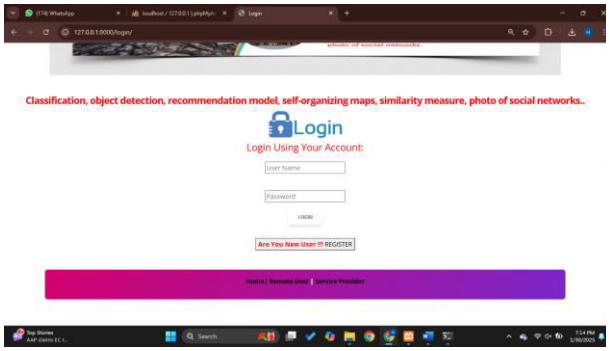

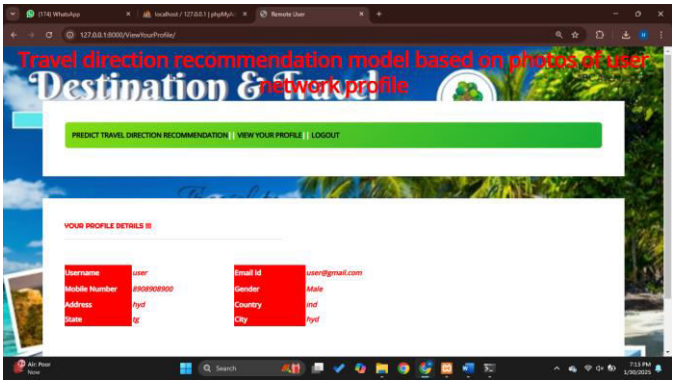

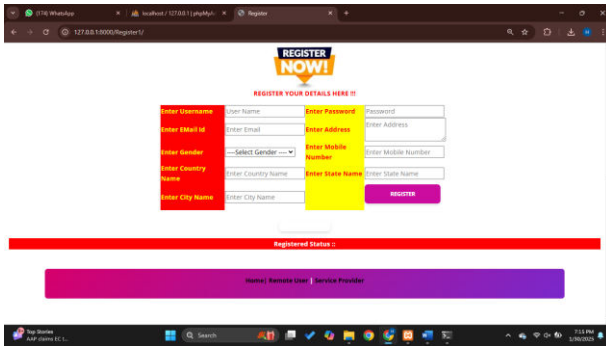

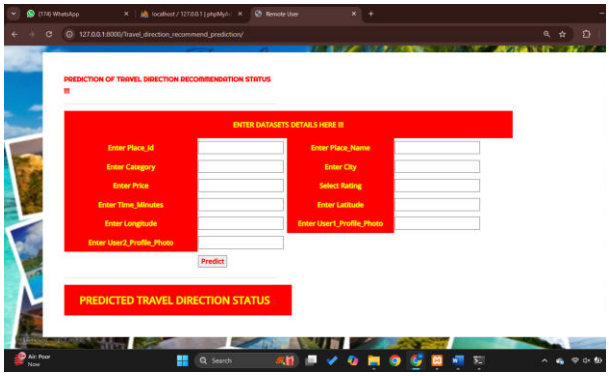

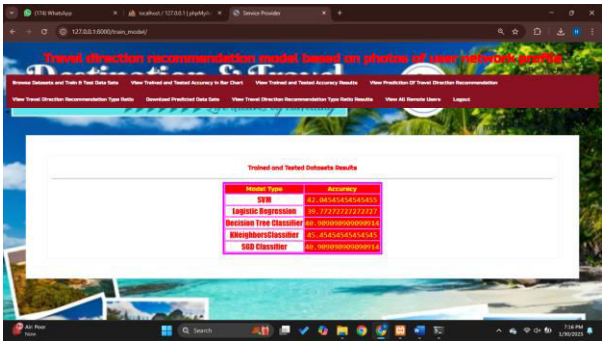

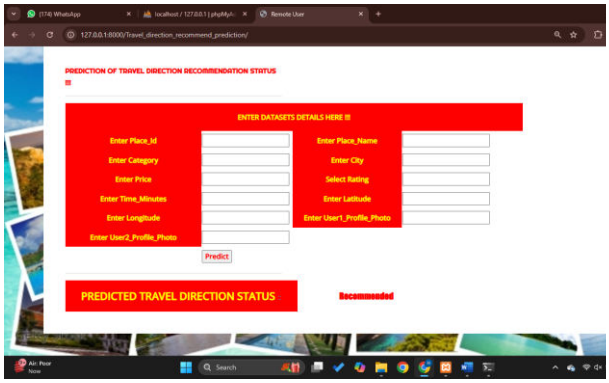

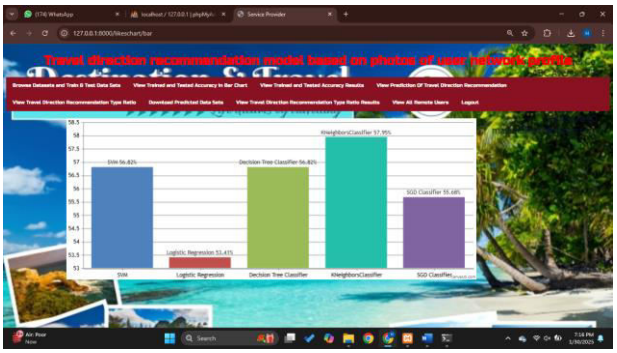

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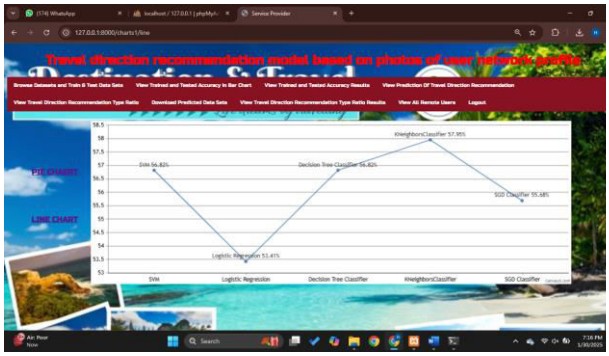

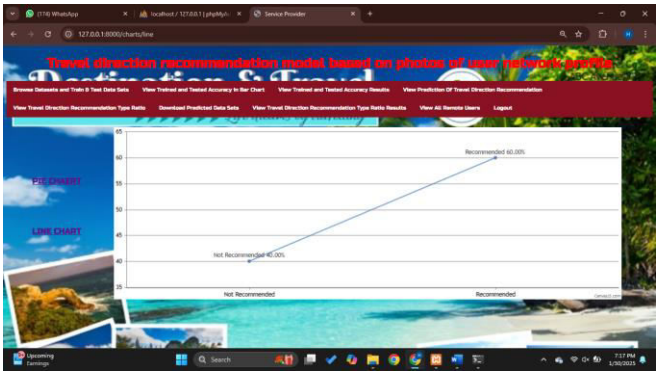

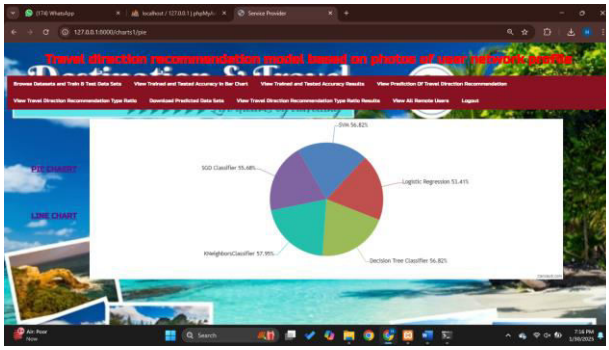

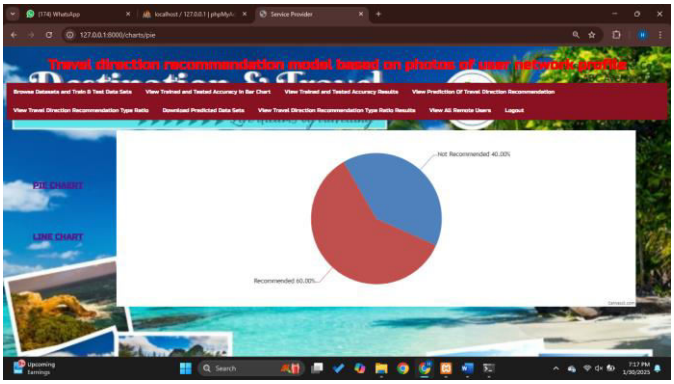

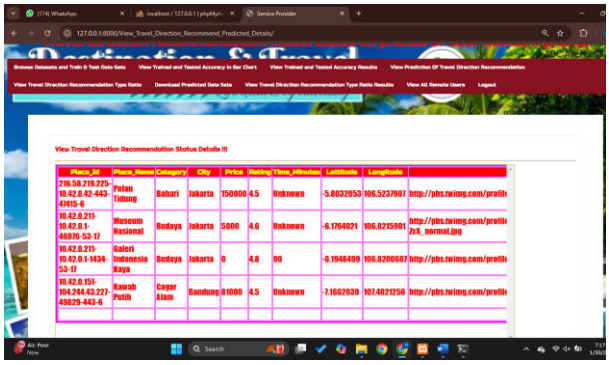

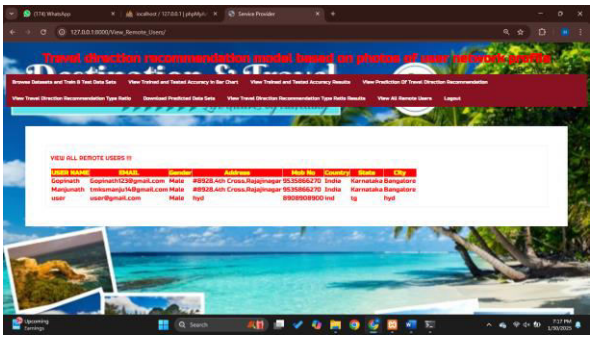

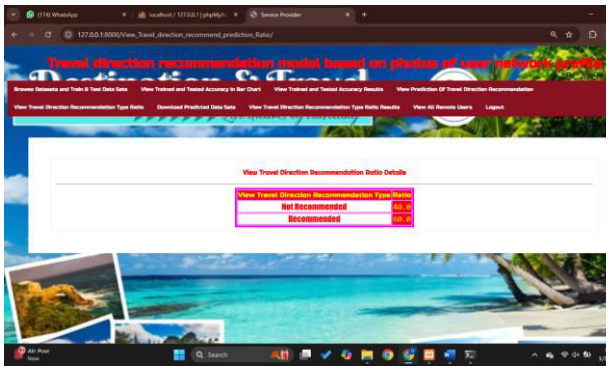

CONCLUSION

The advice of trip destinations is still important in the study publications that are now available; however, there is a paucity of datasets for visited countries, places, travel images, and things that are described in these articles. In order to increase the accuracy of location, we developed a system that was entirely automated and acquired Instagram photographs from users, identified things that were present in those photos, and evaluated the data from the items. By automating this process, we are able to generate a data collection consisting of vital information and modify or discretize the metadata associated with it.

With regard to the dataset that was gathered, user photographs may be evaluated and compared with the records that are included within the dataset, so determining the degree of similarity between them and their participation in the cluster. We may construct a trip destination recommendation system by merging data from counties with photographs that are similar to one another. It is possible to draw the conclusion, based on the results of the tests that were carried out, that the model may be improved by including a variety of various variations. The most efficient method, on the other hand, is to make use of a combination model. This model is able to provide recommendations for 10 nations, which is equivalent to sixty-three percent of the countries that the user experienced. After doing an analysis of the number of countries that users traveled to in addition to those that were supplied as input for the model, we discovered that the accuracy was even greater, averaging 96% accurate. Because it is based only on the photographs of users, this is an encouraging outcome that can more reliably anticipate travel routes.

The comparison of the identified object vector with data from other records in our dataset serves as the foundation for the trip suggestion model that we have suggested. The necessity to do a repeated study of each picture is eliminated as a result of this. On the other hand, it tends to become very sensitive to any modifications that are made to the object detection model. As a result of this, our dataset was not fit for the purpose of conducting an analysis of photographs that had been processed using various object identification systems. These solutions provide a variety of information, such as distinct distributions of the likelihood of identifying an item or different lists of things that have been identified. In the event that the object detection model undergoes modifications, the whole dataset of comparison photographs have to be altered in order to get updated scores of items that have been discovered. Currently, the solution is intended to provide recommendations about nations. It is possible that the model might be improved or extended in order to propose a more particular place. This is because many nations have a high number of different regions. The term "region" or "specific area" might be used to describe this. The information is included inside the dataset, and it has the potential to be used for more in-depth trip planning.

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