ENHANCED TOURIST PLACE RECOMMENDATION WITH CHATTING SYSTEM

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ABSTRACT

We are creating a platform where we recommend travel places based on user profile and provide a customized place of interest to accommodate user specific needs and preferences. In general, user inclination towards travel destinations changes over time. We will be using a content-based recommendation algorithm to perform recommendations of top places to visit. After selecting the place from recommended places, users can see some information about the place and see blog/videos from the top tourist who recently visited that place. User can upload their blog in which they can share information about how they enjoy their experience at that place, where they stay. Then users can decide if they should visit that place or check the next place. Users can also see nearby places of that particular place where they can travel if they have free time. In frontend we will be using React Js and at Backend we will be using Node Js and to store and interact with databases we use firebase.

INTRODUCTION

MOTIVATION

Nowadays, due to growth there is lots of option to travel and people can sit at home and plan their tour. But in this growth user has to select from plan that has been developed by tour-planner company. he doesn't get all the places of his choice. So, we decided to provide platform to user which will provide places to visit by our recommendation system to user. Also, many planners don't provide the nearby places of the place that is recommended in the plan. But our platform will provide nearby places of the recommended place. So, that user can plan his full day according to all the places. Lot of the time we don't about the places recommended. So, we try to get the information of places but we get only forum to interact with user who have visited which sometimes boring. But what if we provide interactive chat box in which you can interact with the recently visited users and what if also, we get to see the blogs and photos of users. In this way, we can get more information about the place.

PROBLEM DEFINITION

- Most of the sites recommend places that all have forum systems where users can share their review.
- Users can't share their overall experience with photos and videos on other platforms. User can give only short review about places.

- On other platforms there is no way we can get detailed information about a place from a recently visited person.

LITERATURE SURVEY

[1] Homaira Amzad, K. Vijayalakshmi, "Tourism Recommendation System: A Systematic Review", International Journal of Engineering Research & Technology (IJERT) Vol. 10 Issue 09, September-2021.
Description: In this research paper, author describes the various filtering techniques to approach recommendation system. There are mainly two types of filtering techniques like Collaborative filtering and Content based filtering to approach recommendation system. After seeing advantages and disadvantages of both content-based and collaborative based algorithm we have seen that collaborative filtering has 'cold-start' (when there is no information available about the user) issue. So, we will be using content-based algorithm.

[2] Monishkanna Barathan, Ershad Sharifahmadian, "Hybrid POI recommendation system for tourism", International Journal of System Modeling and Simulation - Vol 3(1) Mar 2018.
Description: While studying this paper we came to know about challenges in the recommendation system. a) To recommend the places of his point of interest b) It also difficult to show places to new user due to 'cold start' issue. To solve this problem, we have to use hybrid recommendation system which means to combine two or more recommendation algorithm to get proper result by overcoming flaws of one recommendation algorithm by others.

[3] Rachana Naik, Abhishek Raghuvanshi "Hybrid News Recommendation System using TF-IDF and Machine Learning Approach", International Journal of Scientific Development and Research (IJSDR) October – 2020.
Description: While searching for other algorithm we come to know about TF-IDF algorithm which is retrieves information based on the frequency of the keyword in the whole data set as well as particular document. In this research paper they are using naive bayes classification technique along with TF-IDF algorithm as we decided initially to use hybrid recommendation system in our project, so we are using content based along with TF-IDF algorithm.

[4] Prof. P. A. Manjare, Miss P. V. Ninawe, Miss M. L. Dabhire "Recommendation System Based on Tourist Attraction", International Research Journal of Engineering and Technology (IRJET) Apr-2016.
Description: While studying this paper we came to know about user-based recommendation system in which recommendation of tourist places is based on the user rating. While recommending places on user rating it becomes difficult to recommend places for new user and also some ratings are false rating which will affect our recommendation algorithm. Algorithms are used in this paper are mainly mining algorithms which are not suitable for recommendation.

[5] Sai Spandhana Reddy Emmadi, Sirisha Potluri "Android Based Instant Messaging Application Using Firebase", International Journal of Recent Technology and Engineering (IJRTE) January 2019.

Description: While studying this paper we came to know about Firebase and its application How we can use firebase and its realtime database for our chatting functionality. As we are trying to develop a realtime chat box in which there will be separate chat room for each place so that user can get information by asking questions or seeing previously asked question. As this application is only based on android, we are trying to build application which is suitable for all devices. We learn how we can used Firebase for various functionality like authentication, storing images, store messages and hosting website.

[6] Prof Sachin Walunj, Yashwant Bhaidkar, Pranav Bhagwat "TOURIST PLACE RECOMMENDATION SYSTEM", International Journal of Advance Research and Innovative Ideas in Education (IJARIIE) 2016.

Description: As we are making a tourist place recommendation system in which we are recommending a tourist place and also, we are thinking to recommend nearby places to that particular place which will help the user to plan his trip properly. As this paper suggest only recommendation of nearby places using user location which is not sufficient and it is only for android user so we are trying to combine this recommendation system with our recommendation system.

Sr. No	**Title of Paper**	**Publication with year**	**Findings**	**Research Gap**
1	Tourism Recommendation System: A Systematic Review	International Journal of Engineering Research & Technology (IJERT) 2021	We have compared both content based and collaborative and we find their accuracy	As we know using collaborative filtering we will have "cold start "issue, so we will be using content based
2	Hybrid News Recommendation System using TF-IDF and Machine Learning Approach	International Journal of Scientific Development and Research (IJSDR) October – 2020	We came to known about TF-IDF is an information retrieval algorithm based on the occurrence of the keyword in the whole data set as well as particular document	In this research paper they are using naive bayes classification technique along with TF-IDF algorithm but in our project, we are using content based along with TF-IDF algorithm.
3	Hybrid POI recommendation system for tourism	International Journal of Science and Management Studies (IJSMS) Mar 2018	In this paper we found about the importance of hybrid point of interest recommendation	For Hybrid Filtering we required complex dataset and also some user data as age, gender so therefore to simplify we will be using TF-IDF algorithm

			and its three techniques: Demographic filtering, content based and collaborative filtering	
4	Recommendation System Based on Tourist Attraction	International Research Journal of Engineering and Technology (IRJET) Apr-2016	Scalability, accuracy and "cold start" problems of a collaborative filtering recommender system are issues to be concerned about	We will be giving a rating for zeroth comer viva using the previous rating. So, if a new place is added. We will verify it and give a rating with the help of site reference.
5	Android Based Instant Messaging Application Using Firebase	International Journal of Recent Technology and Engineering (IJRTE) January 2019	International Journal of Recent Technology and Engineering (IJRTE) January 2019	We will build a web-based chat system which can connect to a recommendation system
6	Tourist Place Recommendation System	International Journal of Advance Research and Innovative Ideas in Education (IJARIIE) 2016	This paper shows recommendations of nearby places by fetching the location of users by GPS. It's based on only android devices.	If a user selected one place from top 10 recommended places, we will also show other nearby places to visit of that selected place using that place location

SOFTWARE REQUIREMENT SPECIFICATION

INTRODUCTION

Project Scope

The targeted software product is a Recommendation System. The system makes an extensive use of travel places data to come up with reasonable recommendation of places of user preferences and it will also recommend nearby places of the place that is choose by user. For a first recommendation system we will study the paradigms of Content-based and TF-IDF algorithm.

As a beginning, the scope of the system is scaled down to Content-based filtering and TF-IDF algorithm and we will present that recommendation in the form of API. This type of filtering is based on collecting and analysing huge amount of places information and processing that information in **Term Frequency — Inverse Document Frequency Algorithm.** In this Algorithm

we recommend the places on keyword search by the user and it recommend places by matching the keyword frequency**.**

The project limits the improvement of the recommendation system around these challenges and favours accuracy over performance while giving the final suggestions. As a milestone, the system should follow the methods to enhance accuracy, the performance enhancements are not included in the scope.

The Recommender System will be a Web Service and the end users will be directly exposed to the suggestions made for them.

User Classes and Characteristics

User: This class comprise a general audience that will use the application. Each user processes his/her login credentials in the form of email and password. Upon login they will be able to view the application and access its features.

User Registration: The details provided by the user as name, email id and phone no. (optional) are accepted as registration details.

User Login: This will enable secure user login by checking the data entered by the user as his/her phone number or email and password.

See Recommendation: User will be able to search tourist place using keyword then he can see best place to visit according to his keyword.

Blogs: User can see blogs of recently visited persons of selected place and can also add his blog.

Assumptions and Dependencies

The user must have constant internet connection.

Unique phone no or email id to create account.

FUNCTIONAL REQUIREMENTS

System Feature 1

User login:

Logging in is usually used to enter a specific page, website or application, which trespassers cannot see. Once the user is logged in, the login token may be used to track what actions the user has taken while connected to the site.

Personalised Blog System:

User can share their customized blog with photos and videos on their experience.

System Feature 2

Recently Visited Feed:

User can get information from recently visited person from their blogs and for more information user can chat with the person who recently visited.

Internal recommendation

If a user visited a particular place and if he has extra time to spend so our platform would also recommend place near that place (5-10 km near him) so he could easily visit that place and enjoy it as well.

EXTERNAL INTERFACE REQUIREMENTS

User Interfaces

Our Web Application is the mixture of some webpages built in React JS / HTML / CSS and some recommendation Algorithms, also chat System.

Web Pages contains different sections like Home Page. About Us etc.
While come to real time operations like to Search the Tourist Places to visit our data gets regarding places will show the places to visit to User, for now only. Then after selecting the particular place, User get to know some information related with that by our System Only, Also User get to know the information regarding particular place, which is shared recently by the other users, which they visited. Users can see the information through Blog, Photos & Videos. Also, user chat with the other users in real time for any queries. Also, if the user wants to share the any information of place that he recently visited them our system will provide the interface to share their experience with Public.

Then these users will get recognize the other users via like, or followers and recognize as Top Tourist.

Hardware Interfaces

Our web application will be supported on all devices.

While comes to browser, as we are using React JS. Internet Explorer, Chrome and firefox are being supported by React JS.

NONFUCNTIONAL REQUIREMENTS

Performance Requirements

Performance of making recommendation and updating this recommendation is very important issue because we are aiming to make the system real-timed. In other words, the system should have enough speed that users of the system cannot realize the processing of data. In order to make system real-timed, at the end of recommending the places or nearby places system shall update recommendations. Besides, our web service should handle multiple users at the same time.

- **Start-up Time:** The application should display the opened document within 10s after it is started at normal internet speed.

- **Edit Response Time:** The application should display updated values within 1s after user triggers the edit operation at normal internet speed.

- **Smooth Scrolling:** While a user scrolls the requirements table, the application should not display scrolling jerks longer than 200ms at normal internet speed.

Security Requirements

Database has to be reached securely and its data should not be broken. It also should not change except interagent updates. Moreover, since our dataset contain some personal information of user such as userId, personal information, and photos. So, security design is important in the web.

Software Quality Attributes

- AVAILABILITY: The webservices should be available on both platform (Android and Desktop) at any time without any error.

- CORRECTNESS: The user should get proper recommendation for places which user have search and he should also get correct and accurate details of places.

- MAINTAINABILITY: The administrators will maintain proper detail of places and chat-group will also be maintain.

- USABILITY: The places recommendation and proper detail should satisfy a maximum number of customer’s needs.

SYSTEM REQUIREMENTS

Software Requirements (Platform Choice)

- Frontend: React JS
- Windows/Linux/MacOS
- VSCode
- Version Control System Git

Hardware Requirements

- Laptop/Desktop Computer
- Min 4GB Ram
- HDD 100GB

ANALYSIS MODELS: SDLC MODEL TO BE APPLIED

For project development, we will be following the Iterative SDLC model. In this model, we can start with some of the software specifications and develop the first version of the model. After the first version, we can test and debug it and then move on to the next phase of development. So, the iterations go on till we come up with the final product. Some steps in this model are:

- Requirement Gathering and Analysis: In every phase of our project development plan, we will start with requirement gathering and analysis. We will check the dependencies, packages etc required to implement the desired module for the project.
- Design: We will design the basic prototype of how the module should work in the project.
- Implementation: then we will move on to the implementation of that module.
- Testing: In testing, we will test the implemented module and debug it.

SYSTEM IMPLEMENTAION PLAN

The project will be developed in 4 phases.

In Phase 1:

1. First, we have decided on the appropriate technology stack and some basic requirements for the development.

2. Then we have to set up our project development stack and environment, like ReactJS, firebase, GitHub for the version control system, virtual environment for python.

3. We will focus on creating a multiuser system by adding a user authentication system i.e., login, log out for the user.

In Phase 2:

1. We will be adding our algorithms and creating a static database for testing the algorithm.

2. Once we are ok with our algorithms and database, we will move on to create REST APIs.

3. We will recommend place on app using that API.

4. In phase 2, user can see a recommended place to visit and some details about place.

In Phase 3:

1. In this phase we will add function in which user can add his blog if he visited to particular place.

2. User can now see a blogs of recently visited peoples of recommended place.

3. After this we will start working on chat room functionality.

Phase 4:

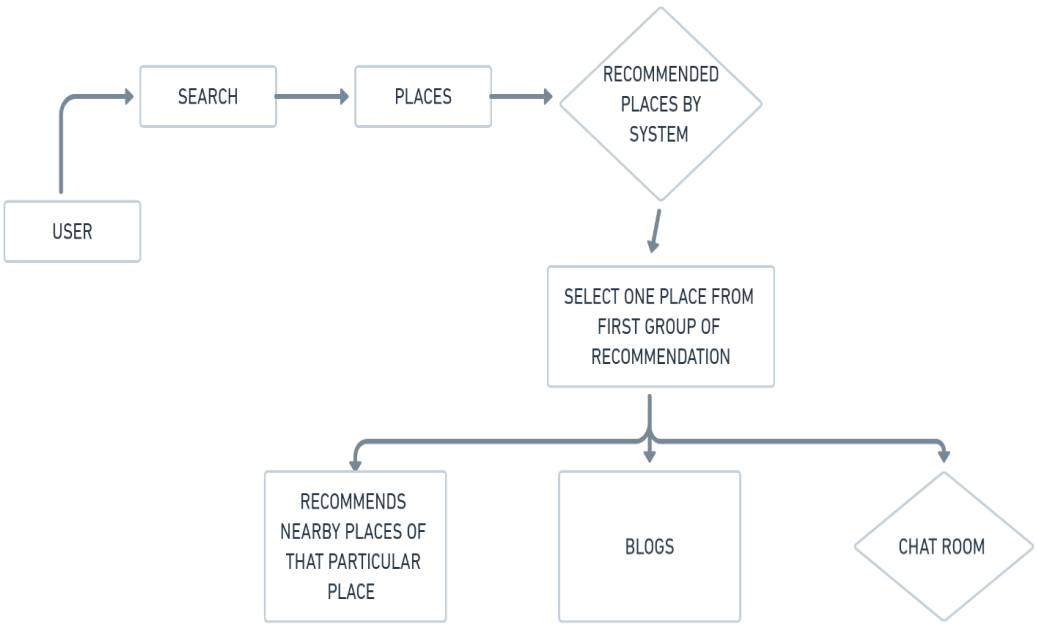
1. This will be the last phase in which we will complete chat room functionality. There will be a special chat room for every place.

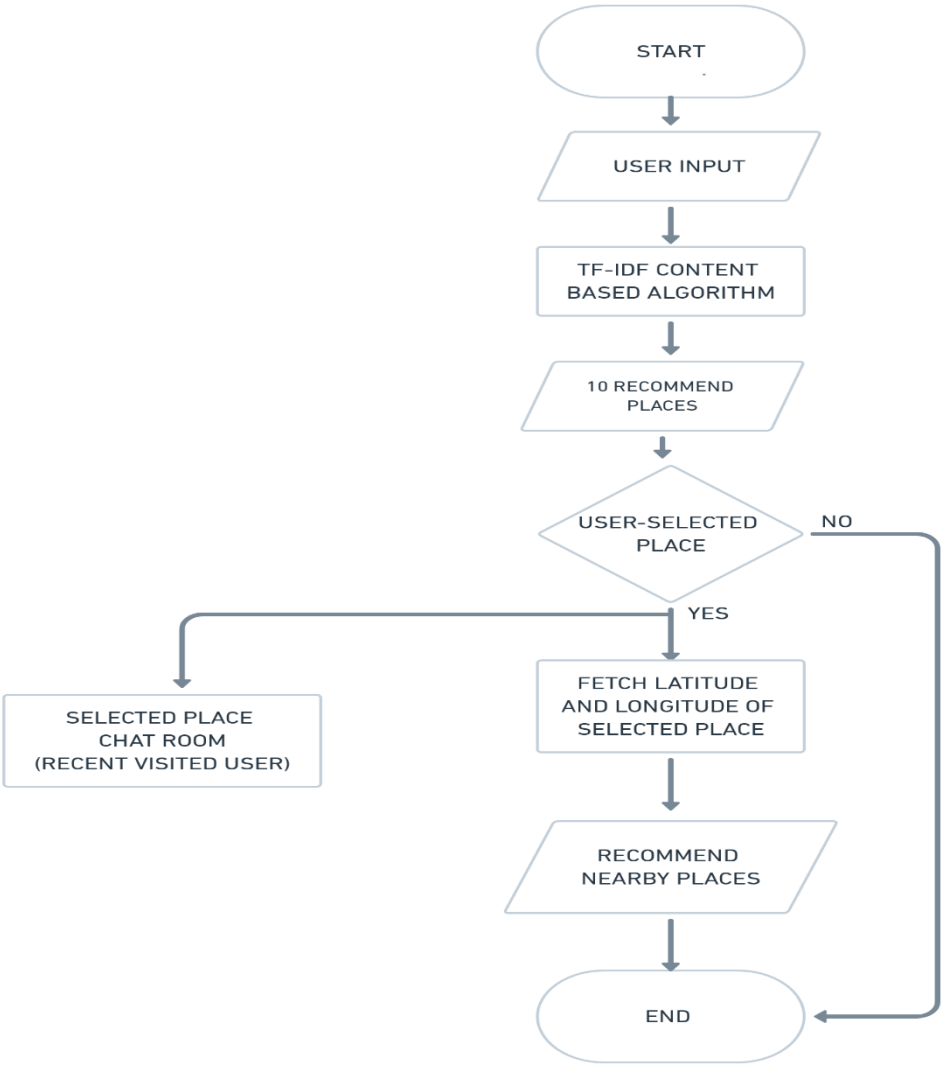
2. Make the User Interface more sophisticated.

SYSTEM DESIGN

SYSTEM ARCHITECTURE

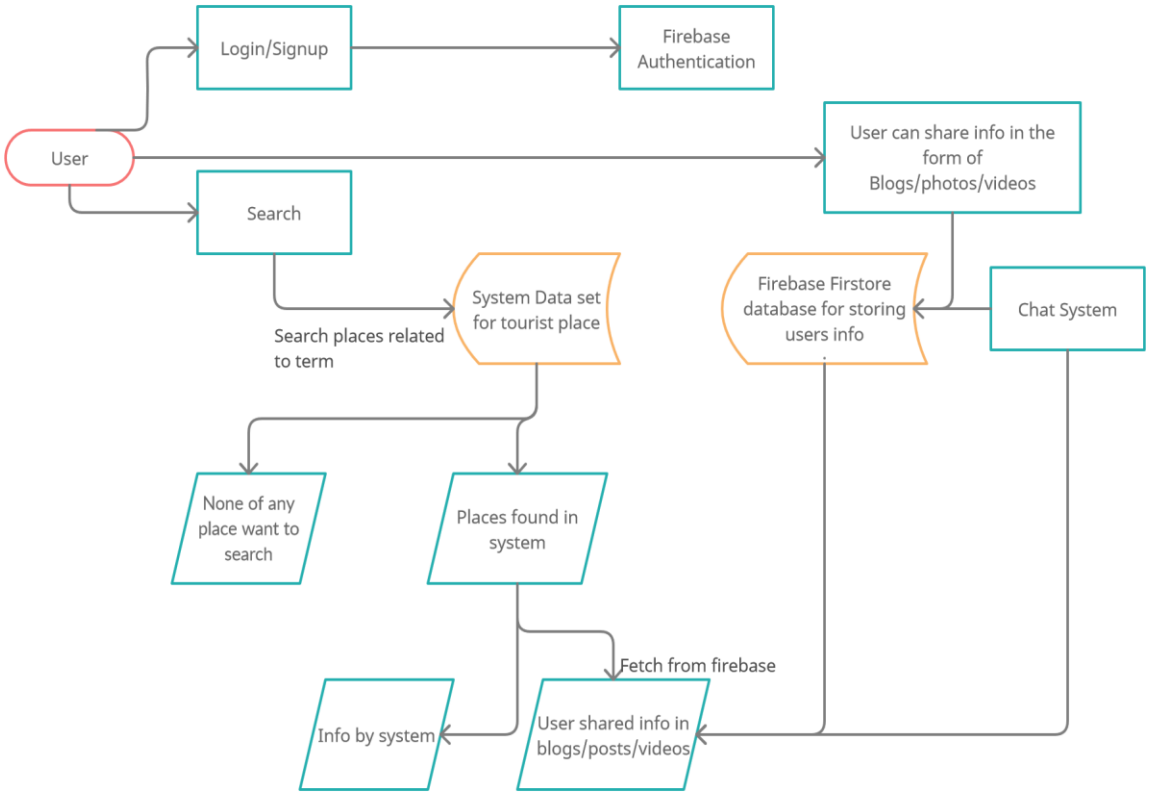
Figure 1: Architecture of **"Enhanced Tourist Place Recommendation with Chatting System"**





DATA FLOW DIAGRAMS

Figure 2: Dataflow diagram of **"Enhanced Tourist Place Recommendation with Chatting System"**

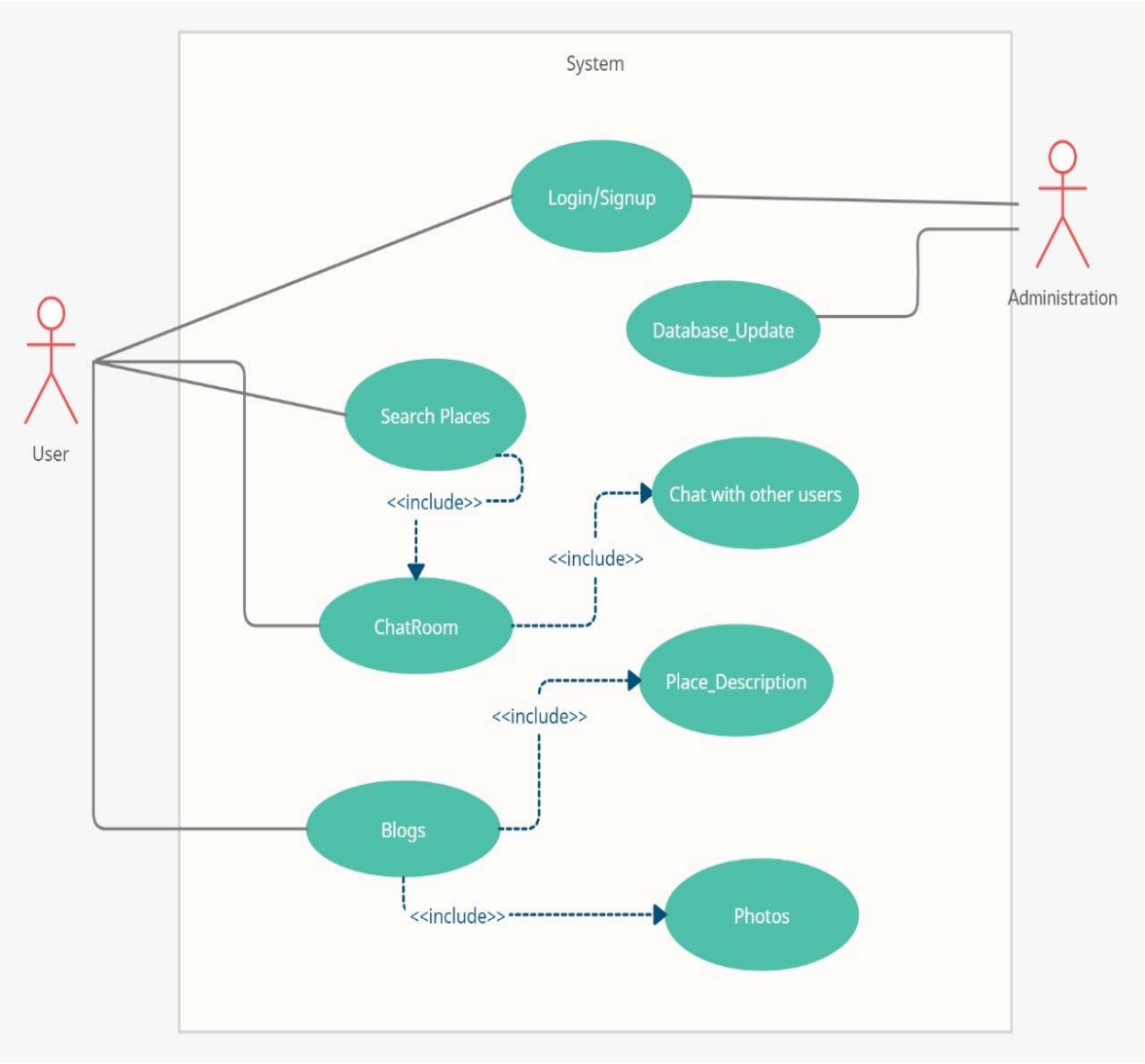


ENTITY RELATIONSHIP DIAGRAM

Figure 3: Entity Relationship diagram of **"Enhanced Tourist Place Recommendation with Chatting System"**

UML DIAGRAMS

Figure 4: UML diagram of **"Enhanced Tourist Place Recommendation with Chatting System"**



OTHER SPECIFICATION

ADVANTAGES

- Get Information of places from recently visited persons by seeing his blog and chatting in chat room.
- It will also help user to plan his whole day properly by also recommending nearby places.
- Application has blogging function in which user can share his whole experience of travelling at a place in his blog with images.

LIMITATIONS

- The primary disadvantage of application it will only recommend the places which are in database.
- The application opnly recommend places it will not provide the expenses.

APPLICATIONS

- From our platform user can make his customized plan of places to visit and this function can be used in travel planner app.

CONCLUSION & FUTURE WORK

CONCLUSION

This document is prepared to give proper details of the project. It gives detail of functional, non-functional, system requirement, system design and architecture.

Thus, we are going to implement a web-based software application using React JS. We will implement recommendation feature using TF-IDF and Content-based algorithm. Thus, it is possible to get places recommendation in easy way. Also, the system provide facility to interact with recently visited person by our chat box function which we will develop using firebase as backend.

FUTURE WORK

In future we will also try to provide recommendation of hotels to stay and the overall expenses to explore a particular place.

REFERENCE

[1] Homaira Amzad, K. Vijayalakshmi, "Tourism Recommendation System: A Systematic Review", International Journal of Engineering Research & Technology (IJERT) Vol. 10 Issue 09, September-2021.

[2] Monishkanna Barathan, Ershad Sharifahmadian, "Hybrid POI recommendation system for tourism", International Journal of System Modeling and Simulation - Vol 3(1) Mar 2018.

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