PROJECT DESIGN

PERSONALIZED ITINERARY RECOMMENDATION SYSTEM

Prepared by

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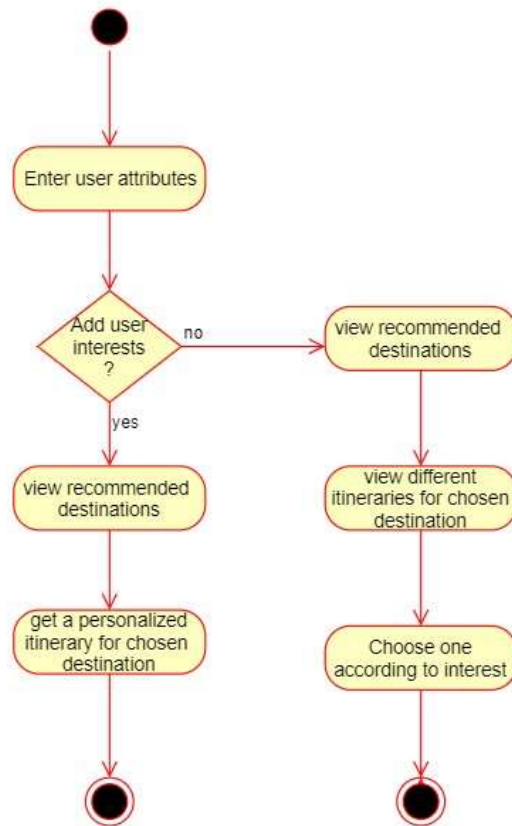**A. P. Shah Institute of Technology, Thane**

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1. PROPOSED SYSTEM

The main aim of our project is to make it extremely convenient for people to plan their vacations by integrating all aspects of choosing a travel destination and planning the itinerary inside one application. This means the hassle of searching multiple websites to choose a place of interest could be avoided. 'Personalized Itinerary Recommendation System' is the one stop application that will recommend the user an array of travel destinations as well as personalized itineraries by considering various aspects such as season of travel, budget of the user and so on. The highlight of our application would be the chatbot interface. Through the chatbot medium, the user can effectively interact with the chatbot, thereby gaining a human-like experience while communicating. The unique thing that sets this recommendation system apart is its extremely user-friendly interface. Within a few clicks, the user is presented with a cluster of suitable travel destinations as well as personalized itineraries right from adventure to relaxation.
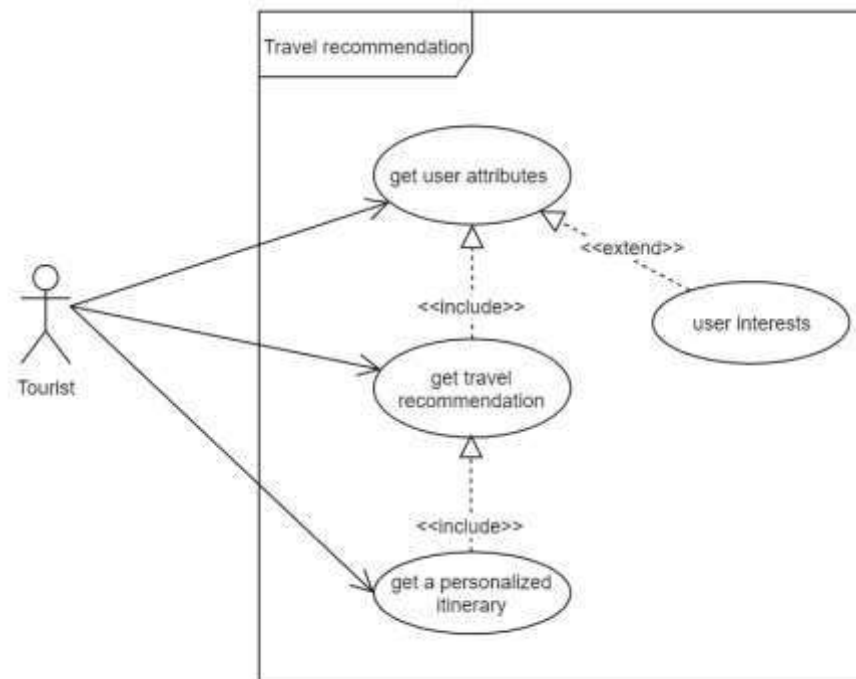
2. FLOW OF MODULES

The entire project can be broadly classified into four main modules: dataset, chatbot interface, destination recommender and itinerary generator. The flow of modules is such that the working of the current module depends on the successful completion of the previous module. For example, the chatbot interface cannot work if the dataset module is not under working conditions or if the data is not trained accurately. Hence the first step in the basic flow of modules include collection of data from relevant sources. After the data has been retrieved, the data has to be trained and tested. Only when this phase is successfully completed, the chatbot interface module comes into the picture. The chatbot provides a human-like interface for the user to interact with. The chatbot will take certain inputs from the user in order to recommend a place. The application that we will use to train our chatbot will be 'DialogFlow'. After the chatbot is fully implemented, can it recommend a place and a personalized itinerary. While recommending a place, it will suggest a number of places of similar type. Not only that, the itinerary generator will generate a few itineraries of different types from which the user can choose according to his/her interest.

3. ACTIVITY DIAGRAM

4. USE CASE DIAGRAM

Travel recommendation

get user attributes

<<extend>>

user interests

<<include>>

Tourist

get travel recommendation

<<include>>

get a personalized itinerary

5. DESCRIPTION OF USE CASE

The above use case diagram shows the visual representation of the process that is required to get a travel recommendation. This use case diagram helps us to visualise the functional requirements of the system. In this diagram, the actor that is going to interact with the system is the tourist or the traveller looking for a place to travel to. Here, the user interacts with three use cases namely; get user attributes, get travel recommendation and get personalised itinerary. The user has to enter the desired attributes like date of travel, number of adults and children, etc in order to proceed. A number of travel destinations would be recommended on the basis of the input attributes. Hence, the include relationship is used for the dependency. For each destination, three different itineraries would be provided according to different interests. Therefore, personalised itinerary is dependent on the destination. 'Get user attributes' has an extension of 'user interests' where in the user can add its interests as well and only one personalised itinerary will be provided on the basis of that. This is completely optional. In this way, the core functionalities of the system are highlighted with the help of use case diagram.

6. <u>MODULES</u>:

- MODULE 6.1: DATASET:

  The dataset will be collected from a number of relevant sources from the web using web scraping. The dataset module will include collecting the dataset, training the dataset and then testing the data using tensor flow.

- MODULE 6.2: CHATBOT INTERFACE

  The chatbot interface will act as an intermediate between the user and the system. It will be trained using the DialogFlow application. The user can interact with the chatbot in order to input the desired attributes. Based on these attributes, the chatbot will recommend a place along with a personalized itinerary.

- MODULE 6.3: DESTINATION RECOMMENDER

  This module uses the trained dataset and recommends a cluster of places to the user according to the user's interest. This recommendation takes place through the chatbot interface. Instead of recommending only one place, the recommender system recommends a number of places of similar type from which the users can choose the place of their interest.

- MODULE 6.4: ITINERARY GENERATOR

  The itinerary generator is the last phase of the application. After the user has been recommended a cluster of places, they could choose a destination of their choice from these places, after which a few personalized itineraries will be generated according to the choice of the user. If the user wishes to enter the specific details, a fixed itinerary catering to that specific reason will be generated, e.g. solo trip. If the user does not enter the specific details, then a number of itineraries, each focusing on a different genre of travel will be generated such as adventure, sightseeing, relaxation and so on