Intelligent Travel Recommendation System

Personalized intelligent travel recommendation system that uses three different recommender systems, each designed for a specific aspect of travel: attractions, hotels, and restaurants. The system combines deep learning techniques, collaborative filtering, and content-based filtering to provide tailored recommendations to users based on their preferences and past behavior.

The attractions recommender system uses Restricted Boltzmann Machines (RBM) to learn patterns in user behavior and recommend attractions that are most likely to be of interest. The hotels recommender system uses Matrix Factorization with Alternating Least Squares (ALS), a highly scalable and distributed collaborative filtering technique, to provide recommendations based on the user's past hotel preferences.

The restaurants recommender system is a hybrid system that combines K-Means algorithm for content-based filtering and K-Nearest Neighbors for memory-based collaborative filtering. The system provides recommendations for breakfast, lunch, and dinner based on the user's past restaurant preferences.

The system also considers the timing of attractions to provide recommendations for which ones are best to view during the day or at night. For each aspect of travel, the system provides two recommendations per timing per day for the entire duration of the user's travel.

The system was evaluated using a dataset of travel-related information, and the results showed that the system was effective in providing personalized recommendations to users. Overall, the personalized intelligent travel recommendation system is a valuable tool for travelers seeking customized recommendations for their travel destinations.