

SOCIAL MEDIA-DRIVEN TRAVEL SEQUENCE RECOMMENDATIONS FOR PERSONALIZED ITINERARIES

Janani R¹, Jayapriya S², Heena A³, Kaviyarasi A⁴,

^{1,2,3,4} UG Student, Computer Science and Engineering Bharathiyar Institute of Engineering for Women (Autonomous), Salem, Tamilnadu, India

⁵ Assistant Professor, Computer Science and Engineering & Bharathiyar Institute of Engineering for Women (Autonomous), Salem, Tamilnadu, India

Abstract -Travel planning has become increasingly complex due to the vast amount of destinations and information available online. Social media platforms contain valuable travel-related data such as user posts, location tags, reviews, and photos that reflect travelers real experiences and preferences. This paper proposes a Social Media-Driven Travel Sequence Recommendation system that generates personalized travel itineraries based on user interests and social media data. The system analyzes travel sequences shared on social platforms to identify popular travel routes and attractions. Machine learning techniques are used to recommend optimized travel paths tailored to individual users' preferences, budget, and time constraints. The proposed approach enhances travel planning by providing personalized recommendations and improving user satisfaction. Experimental analysis shows that the system effectively suggests meaningful travel sequences and improves itinerary personalization.

Key Words: Social Media Analytics, Travel Recommendation System, Personalized Itinerary, Machine Learning, Tourism Technology, Sequence Recommendation.

1. INTRODUCTION

Tourism has significantly evolved with the rapid growth of digital technologies and online platforms. Social media platforms have become an essential source of travel information where users share their travel experiences, photos, reviews, and location check-ins. These platforms generate massive amounts of user-generated data that can be analyzed to understand travel behavior and preferences.

Traditional travel recommendation systems mainly focus on suggesting individual tourist attractions or destinations based on ratings and reviews. However, tourists usually visit multiple locations during a trip, and the sequence in which these places are visited plays an important role in efficient travel planning. The analysis of social media data allows researchers to discover travel patterns and commonly visited routes among tourists. By analyzing these patterns, it is possible to recommend optimized travel sequences that help users create better travel plans.

The proposed system uses data collected from social media platforms to identify popular travel sequences and generate personalized travel itineraries. The system considers various factors such as user interests, travel duration, budget constraints, and location proximity. This approach improves the overall travel planning experience by providing intelligent recommendations that align with the user's preferences.

Objectives of the Study

1. To analyze travel-related data collected from social media platforms.
2. To identify common travel patterns and sequences followed by tourists.
3. To design a recommendation system that generates personalized travel itineraries.

4. To improve travel planning efficiency using machine learning techniques.
5. To enhance user satisfaction by providing customized travel suggestions.

2. LITERATURE REVIEW

Several research studies have explored the development of recommendation systems for tourism applications. These systems aim to help travelers discover destinations that match their preferences.

Key findings from previous studies:

1. Early travel recommendation systems relied on **collaborative filtering techniques**, where recommendations were based on user ratings and reviews.
2. Content-based filtering approaches analyze the characteristics of tourist attractions and recommend places similar to those previously visited by the user.
3. Location-based social networks provide valuable travel data through user check-ins, geo-tagged photos, and travel posts.
4. Sequential pattern mining has been used to identify commonly visited travel routes among tourists.
5. Machine learning algorithms such as clustering and classification have been applied to predict travel preferences.

Limitations of existing systems:

- Most systems recommend only **individual locations instead of travel sequences**.
- Limited use of **real-time social media data**.
- Lack of **personalization based on user interests and travel constraints**.
- Inability to handle large-scale unstructured social media data.

The proposed system addresses these limitations by integrating **social media analytics with sequence recommendation algorithms**.

3. PROPOSED SYSTEM

The proposed system recommends travel itineraries by analyzing social media data and identifying popular travel sequences. **The system consists of the following modules:**

1. Data Collection

- Collect travel-related data from social

media platforms.

- Extract location tags, reviews, photos, and timestamps.

2. Data Processing

- Clean and preprocess the collected data.
- Identify travel routes and sequences from user posts.

3. User Preference Analysis

- Collect user preferences such as travel interests, budget, and duration.
- Categorize attractions based on type (nature, historical, adventure, etc.).

4. Sequence Recommendation Algorithm

- Use machine learning or sequential pattern mining.
- Identify popular visiting sequences.

5. Personalized Itinerary Generation

- Recommend optimized travel routes based on user preferences.

3.1 ADVANTAGES

- ✓ The propose system is highly automated and makes the travelling activities much easier and flexible.
- ✓ The user can get the very right information at the very right time.
- ✓ Customers can get the knowledge of the hotels and vehicles they are going to use in their trip prior to their starting of trip.

4. SYSTEM ARCHITECTURE

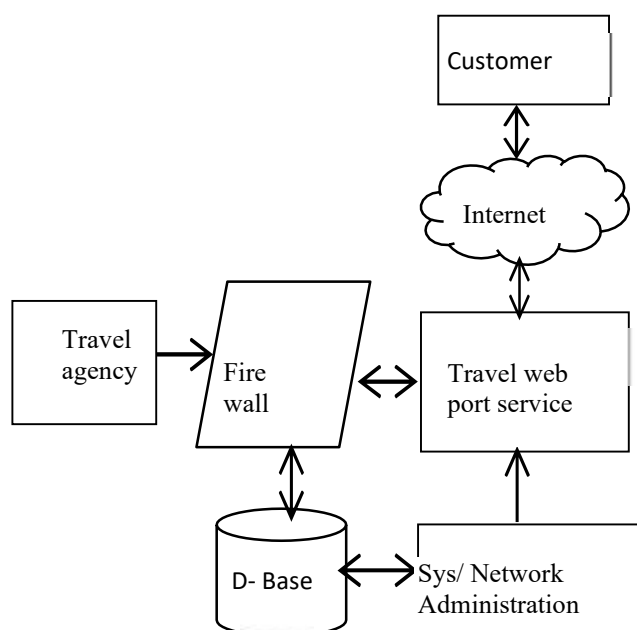


Fig.1 System Architecture

6. METHODOLOGY

The system follows several steps to generate personalized travel recommendations.

Step 1: Data Acquisition

Travel data is collected from social media platforms including:

- Geo-tagged posts
- Travel blogs
- Location check-ins
- Travel photos

Step 2: Data Cleaning

The collected data is processed to remove:

- Duplicate entries
- Incomplete data
- Irrelevant travel posts

Step 3: Feature Extraction

Important features extracted include:

- Location names
- Visit timestamps
- Travel categories
- User ratings

Step 4: Sequential Pattern Mining

Algorithms such as:

- PrefixSpan
- Apriori
- Markov models

are used to identify popular travel sequences.

Step 5: Recommendation Generation

The system combines:

- User preferences
- Popular travel routes
- Geographic distance

to generate personalized recommendations.

Step 6: Itinerary Creation

The final output is a structured itinerary containing:

- Recommended destinations
- Visiting sequence
- Travel schedule
- Estimated travel time

7. RESULTS AND DISCUSSION

The proposed system improves travel recommendation accuracy by analyzing real travel experiences shared on social media. The system successfully

identifies popular travel routes and suggests personalized itineraries based on user interests.

Compared to traditional recommendation systems, the proposed method provides:

- More personalized recommendations
- Efficient travel sequence planning
- Better utilization of social media data

Experimental results demonstrate that the system increases user satisfaction and helps travelers plan trips more effectively.

8. CONCLUSION

Here we have presented the design of a tour management system that can provide the users with the required tourism guidance required anytime and anywhere.

This is a combination of smartphone and internet services. The tour management website contributes a reasonable way for the users to schedule their trips, since it provides detailed information about the tourist places including description, image and map. This method includes various features/ services such as delivering customized packages, the distance between the source and destination location, google maps, online ticket booking, etc. This process achieves its main goal by pertaining to real-time data.

9. REFERENCES

- [1] Aishwarya Bhatt, Joylin Rosario, Ayesha Thasneema, Judith Jennifer Rodrigues, Design and Development of Tour Management System using Android, INTERNATIONALJOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) NCETAIT – 2017(Volume 5–Issue06), 2017.
- [2] Kebete, Y., & Wondirad, A, “Visitor management and sustainable destination Management nexus in Zegie Peninsula, Northern Ethiopia”, Journal of Destination Marketing & Management, vol.13, pp.83–98, 2019.
- [3] Danica, S., & Laesser, C. Travel Agency Marketing Strategy: Insights from Switzerland. Journal of Travel Research, 46 (2), (2007).
- [4] Brodsky-Porges, E. The grand tour travel as an educational device 1600–1800. Annals of Tourism Research, 8(2), pp.171–186, (1981).
- [5] Li Liu, Yanfang Jing “ Android city tour guide system based on Web service” 2nd International Conference on Consumer Electronics, Communications and Networks (CECNet), pp.3118-3121,(2012).
- [6] Ridi Ferdiana; Bimo Sunarfri Hantono “ Mobile tourism services model: A contextual tourism experience using mobile services” 6th International Conference on Information Technology and Electrical Engineering (ICITEE), pp.1-6, 3333222222(2014).