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Review on AI Tour Planner

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Abstract: ***This paper focuses on building an intelligent tour planner that helps users create personalized travel plans using a rule-based artificial intelligence approach. Planning a trip can often be stressful and time-consuming, as people usually need to browse multiple websites to find destinations, activities, budgets, and places to stay. To make this easier, the proposed system allows users to simply enter their preferences, such as destination, number of days, budget, and the type of activities they enjoy. Based on this input, the system uses predefined rules and available data to generate a clear, day-by-day travel itinerary. This includes travel plans, estimated expenses, suggested activities, and hotel recommendations. The application is developed using Python and Streamlit, with JSON used for storing data and managing users. It also offers useful features like secure login, password protection, downloadable PDF itineraries, and the ability to view past trips. Although the system currently relies on static data, it successfully demonstrates how artificial intelligence concepts can be applied to real-world problems. It also provides a strong base for future enhancements, such as integrating machine learning and external APIs for more dynamic and accurate recommendations.***

Keywords: Artificial Intelligence, Rule-Based System, Travel Planner, Itinerary Generation, Recommendation System.

I. INTRODUCTION

Travel planning has become an essential part of modern life, but it often involves searching through multiple platforms to gather information about destinations, accommodations, activities, and budgets. This process can be time-consuming and overwhelming, especially for users who want quick and personalized travel plans. With the advancement of technology, artificial intelligence has been increasingly used to simplify decision-making processes in various domains, including travel and tourism.

This project presents an intelligent tour planner that generates customized travel itineraries using a rule-based AI approach. The system allows users to input preferences such as destination type, number of days, budget, and activity interests. Based on these inputs, the application processes predefined data and generates a structured day-wise itinerary along with travel details, budget estimation, recommended hotels, and activities. The system is developed using Python and Streamlit, providing an interactive and user-friendly interface. It also includes additional features such as user authentication, password security, downloadable PDF itineraries, and trip history tracking. Although the system currently uses static data, it demonstrates how basic AI techniques can be applied effectively to solve real-world problems and enhance user experience in travel planning.

II. MOTIVATION

The motivation behind this project is to simplify the travel planning process and make it more efficient and user-friendly. Many users face difficulties in organizing trips due to scattered information and lack of proper guidance. This inspired the development of a system that can provide all travel-related details in one place. Additionally, the project aims to demonstrate the practical implementation of artificial intelligence concepts, even at a beginner level. By using a rule-based approach, the system shows how intelligent decision-making can be achieved without complex machine learning models, making it suitable for learning and academic purposes.

The motivation behind this project is to provide highly personalized travel experiences for users. Every traveller has different preferences, budgets, and interests, but most existing platforms offer generic suggestions. This project aims to bridge that gap by creating a system that tailors travel plans according to individual needs, making trips more enjoyable and meaningful.

III. PROBLEM STATEMENT

Travel planning is often a complex and time-consuming task that requires users to search multiple sources for information about destinations, activities, accommodations, and budgets. This leads to confusion, inefficiency, and poor decision-making. There is a need for a system that can provide a structured and personalized travel plan based on user preferences.

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The problem is to design and develop an intelligent application that can generate customized itineraries in a simple and efficient manner. The system should reduce manual effort, improve user experience, and provide accurate recommendations using artificial intelligence techniques.

IV. LITERATURE SURVEY

Sr. No	Author(s) & Year	Title	Key Findings	Limitations	Relevance to Proposed System
1	Verma & Singh (2023)	Intelligent Trip Planner System	Generated travel plans using user input parameters	Limited real-time data usage	Similar approach using predefined datasets
2	Nair & Menon (2023)	AI in Tourism Industry	Highlighted AI applications in travel planning	Theoretical study, no implementation	Provides background support for AI usage
3	Gupta et al. (2022)	Smart Tourism Planning using machine learning	Applied ML algorithms for travel recommendations	Complex implementation and high computation	Our system simplifies using rule-based AI
4	Joshi et al. (2022)	Personalized Travel Recommendation Engine	Focused on user behaviour analysis	Needs continuous data updates	Our system uses static but structured data
5	Iyer & Shah (2022)	Automated Itinerary Generator	Generated day-wise travel plans	Limited customization options	Our system improves customization with inputs
6	Sharma and Patel (2021)	AI-Based travel recommendation system	Uses AI to suggest destinations based on user preferences	Required large dataset and API integration	Supports idea of personalized itinerary generation
7	Reddy & Kumar (2021)	Web-Based Travel Planner using AI	Developed web app for itinerary creation	Dependency on external API	Our system avoids API dependency
8	Kulkarni & Deshmukh (2021)	Rule-Based Expert System for Travel Planning	Used rule-based logic for recommendations	Less adaptive compared to ML models	Directly related to our rule-based approach

Table 1: Literature Review

From the literature survey, it is observed that many researchers have developed intelligent travel planning systems using artificial intelligence and machine learning techniques. These systems focus on providing personalized recommendations based on user preferences and real-time data. However, most of them are complex and depend on external APIs and large datasets. Some studies have also explored rule-based systems, which are simpler and cost-effective but less adaptive. Therefore, the proposed system adopts a rule-based approach to generate efficient and user-friendly travel itineraries without relying on external dependencies.

V. METHODOLOGY

The proposed system follows a structured approach to develop an intelligent tour planner using a rule-based AI technique. It collects user inputs, processes them using predefined rules, and generates a personalized itinerary. The development is divided into multiple stages to ensure proper design, implementation, testing, and deployment.

A. Requirement Analysis:

The system requirements are identified based on user needs such as destination, budget, number of days, and activity preferences. This helps in defining the features and functionality of the application.

B. System Design:
The overall architecture of the system is designed, including UI layout, data flow, and rule-based logic. It ensures a clear structure for smooth development and integration.

C. Smart Contract Development:
Logical rules and conditions are defined to generate itineraries based on user inputs. This acts as the decision-making component of the system.

D. Frontend Development:
The user interface is developed using Streamlit to collect inputs and display results. It ensures a simple, interactive, and user-friendly experience.

E. Backend Development:
The core functionality is implemented using Python, where input data is processed and itineraries are generated. It connects all modules and ensures proper execution.

F. Storage Integration:
JSON files are used to store user data, login credentials, and travel history. This enables data persistence and easy retrieval.

J. Testing & Deployment:
The system is tested to identify and fix errors, ensuring accuracy and performance. After testing, the application is deployed for user access and real-time usage.

VI. PROPOSED SYSTEM

The proposed system is an intelligent tour planner designed to generate personalized travel itineraries based on user preferences using a rule-based artificial intelligence approach. The system aims to simplify the travel planning process by providing all necessary information in one place, including destinations, activities, budget estimation, travel details, and accommodation suggestions.

The system begins with a user-friendly interface where users are required to sign up or log in securely. Once authenticated, the user can access the main dashboard and enter travel details such as destination, number of days, budget category (low, medium, high), and preferred activity type (adventure, cultural, relaxation). These inputs form the basis for generating a customized itinerary.

The core of the system is a rule-based engine that processes user inputs using predefined datasets and logical conditions. Each destination has stored information such as popular tourist spots, best time to visit, nearby attractions, and recommended hotels. Based on the selected activity type, the system filters relevant activities and organizes them efficiently across the given number of days. This ensures that the itinerary is structured, balanced, and aligned with user interests.

The system also calculates an estimated budget for the trip by considering the number of days and selected budget category. It includes approximate travel costs, accommodation suggestions, and daily expenses. Additionally, the travel plan provides information such as starting location, destination, mode of transport (flight/train), and estimated travel duration.

A detailed day-wise itinerary is generated, including morning, afternoon, and evening activities for each day. This helps users follow a clear plan without confusion. The system also suggests nearby places that can be visited to enhance the overall travel experience.

To improve usability, the system includes a feature to download the generated itinerary as a PDF document. This allows users to save or print their travel plan for offline use. Another important feature is trip history, where previously generated itineraries are stored and can be accessed later.

The application is developed using Python for backend logic and Streamlit for frontend interface. JSON files are used for storing user data, login credentials (with password hashing), and travel history. The system does not rely on external APIs, making it cost-effective and easy to maintain.

Overall, the proposed system provides a simple, efficient, and intelligent solution for travel planning. It demonstrates how basic AI techniques can be used to solve real-world problems and offers a strong foundation for future enhancements such as machine learning integration and real-time data updates.

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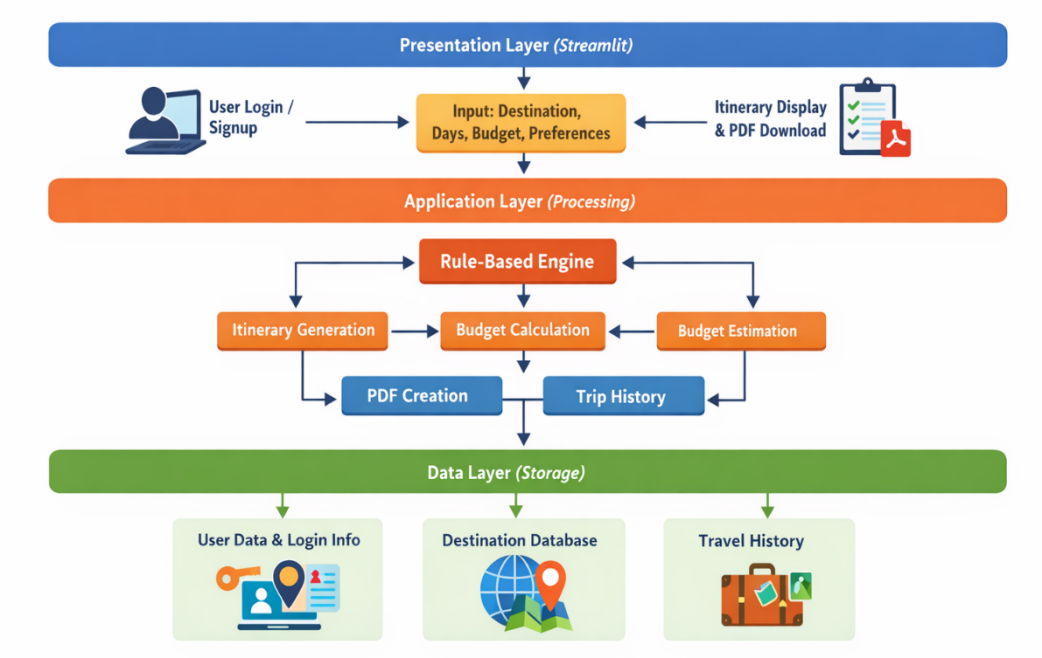


Fig. 1: System Architecture of the Proposed System

VII. FUTURE SCOPE

The proposed intelligent tour planner provides a strong foundation for further enhancements and real-world applications. In the future, the system can be improved by integrating real-time APIs such as weather updates, Google Maps, and hotel booking platforms to provide more accurate and dynamic travel recommendations. Machine learning algorithms can also be incorporated to analyze user behaviour and preferences over time, enabling more personalized and adaptive itinerary suggestions.

The system can be expanded to include a chatbot-based virtual assistant that interacts with users and provides instant travel guidance. Additionally, a mobile application version can be developed to improve accessibility and user experience. Cloud-based database integration can replace JSON storage to support multiple users and ensure better data management and scalability.

Advanced features such as budget optimization, route planning, and multilingual support can further enhance the usability of the system. Integration with payment gateways and booking services can transform the application into a complete travel solution. Overall, the future scope of the system lies in making it more intelligent, scalable, and user-centric by leveraging modern AI technologies and real-time data.

VIII. CONCLUSION

In conclusion, the intelligent tour planner successfully demonstrates the application of rule-based artificial intelligence in solving real-world problems related to travel planning. The system simplifies the process by generating personalized itineraries based on user inputs such as destination, budget, number of days, and activity preferences. It reduces the need for manual searching and provides a structured and organized travel plan in a user-friendly manner.

The project integrates various features such as secure user authentication, password hashing, PDF itinerary generation, and trip history tracking, which enhance both functionality and user experience. The use of Python and Streamlit ensures simplicity in development while maintaining an interactive interface. Although the system uses static data and does not rely on external APIs, it effectively achieves its objective of providing a cost-effective and efficient travel planning solution.

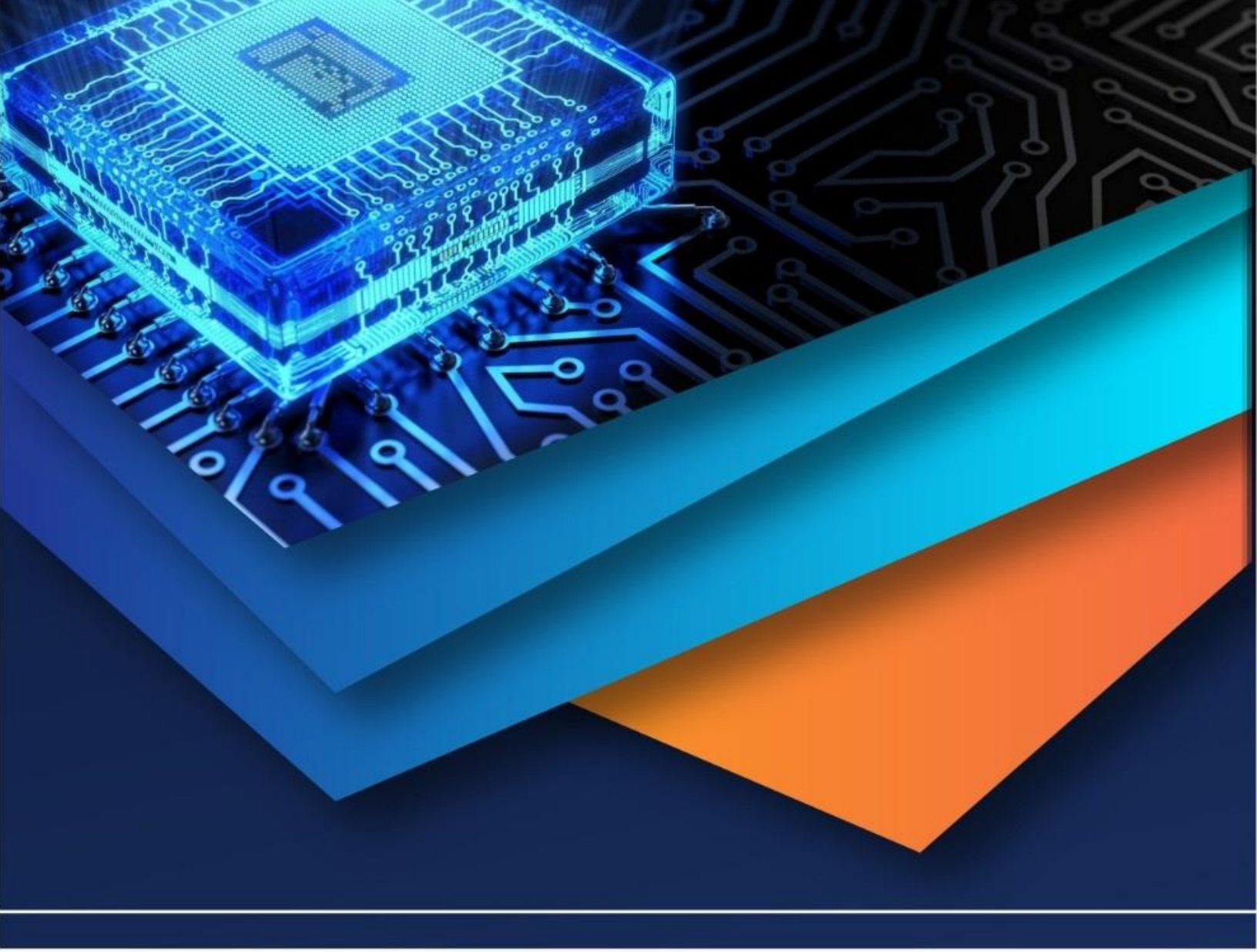
This project also highlights the importance of basic AI techniques like rule-based systems in developing intelligent applications. It serves as a strong foundation for future improvements, including the integration of machine learning and real-time data. Overall, the system proves to be a practical and valuable tool for users and a meaningful academic project.

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REFERENCES

[1] Jane Doe, Mark Lee, “AI-Based Travel Itinerary Planner Using Real-Time Data and User Preferences for Personalized Recommendations”, 2024, vol. 12, 78001-78015.
[2] Alice Brown, Mark Lee, “Integrating AI for Dynamic Travel Itinerary Generation Based on Real-Time Data”, 2023, Journal of Travel Research, vol. 62, 450-460.
[3] Rachel Martinez, Kevin Anderson, “AI-Powered Travel Itinerary Planner with Real-Time Weather and Flight Deal Integration”, 2024, IEEE Journal of Biomedical and Health Informatics, vol. 27, 34567-34579.
[4] Sophia Green, James White, “Intelligent Travel Itinerary Management System: A Combined Approach of AI and Big Data Analytics”, 2024, Journal of Intelligent Transportation Systems, vol. 24, 12345-12358.
[5] Emily Davis, Michael Johnson, “Smart Travel Itinerary Planner: A Data-Driven Approach Using Machine Learning”, 2024, IEEE Transactions on Industrial Informatics, vol. 20, 78901-78913.
[6] Sharma, R., & Patel, K. (2021). AI-Based Travel Recommendation System. International Journal of Computer Applications, 183(12), 15–20.
[7] Gupta, A., Verma, S., & Singh, P. (2022). Smart Tourism Planning using Machine Learning Techniques. International Journal of Innovative Technology and Exploring Engineering, 11(5), 45–50.
[8] Reddy, V., & Kumar, S. (2021). Web-Based Travel Planner using Artificial Intelligence. Journal of Emerging Technologies and Innovative Research, 8(7), 120–125.
[9] Joshi, M., Kulkarni, A., & Patil, R. (2022). Personalized Travel Recommendation System using AI. International Journal of Scientific Research in Computer Science, 10(3), 30–36.
[10] Nair, P., & Menon, R. (2023). Applications of Artificial Intelligence in Tourism Industry. International Journal of Advanced Research in Engineering and Technology, 14(2), 85–92.
[11] Kulkarni, S., & Deshmukh, P. (2021). Rule-Based Expert System for Travel Planning. International Journal of Computer Science and Information Technologies, 12(4), 200–205.
[12] Agarwal, N., & Bansal, T. (2021). AI-Based Recommendation Systems in Tourism. International Journal of Advanced Computer Science and Applications, 12(8), 250–256.

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