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Taste Trend: Your Real-Time Dish Discovery Platform

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ABSTRACT: In the current digital world, users experience difficulties in finding appropriate restaurants due to the presence of a huge number of choices in various locations and cuisines. Conventional search systems offer generic results without considering the preferences of users. As a result, users experience inefficient decision-making. In this context, this paper proposes a dataset-driven restaurant recommendation system named TasteTrend, which provides users with personalized recommendations according to their preferences.

The proposed system uses a dataset for performing filter and rank operations. A matching algorithm based on preferences is used to fetch appropriate restaurant records. In addition, a ranking algorithm based on rating, popularity, and service is used for generating recommendations. The overall system follows a microservices-based architecture with a frontend interface, backend processing, and individual data processing services.

The proposed system helps users in having a better experience with precise and relevant recommendations. In addition, this paper demonstrates how a dataset-driven approach helps in developing intelligent systems without relying heavily on machine learning techniques.

KEYWORDS: Restaurant Recommendation System, Dataset-Based Filtering, User Preference Matching, Microservices Architecture, Data-Driven Ranking, Food Discovery System

I. INTRODUCTION

With the rise of online food platforms and restaurant listing services, users are provided with a plethora of choices when searching for food or restaurants. Although this abundance of information is useful, users are confused and find it difficult to find the most suitable restaurants according to their preferences.

Usually, traditional systems provide users with a list of results based on popularity without considering the specific needs of the users. This results in inefficient recommendations, increasing the decision-making time for users.

To overcome the challenges and difficulties associated with existing systems, this paper proposes a restaurant recommendation system using a dataset-driven approach, referred to as TasteTrend. The proposed system helps users find the most suitable restaurants according to their preferences. Users are provided with a platform to input their preferences, and the system processes this information to provide users with a list of top-rated restaurant recommendations.

Unlike complex AI-driven systems, this paper proposes a simple and efficient approach using a full-stack implementation with a microservices approach.

II. LITERATURE SURVEY

Recent studies have investigated the application of data-driven filtering, collaborative filtering, and hybrid recommendation techniques in building restaurant and food discovery systems to automate tasks such as preference matching, ranking, and personalized suggestion generation.

The research paper "Restaurant Recommendation System using Collaborative Filtering and Content-Based Filtering" presents a web application that filters restaurants based on user taste using a dataset of 192,609 rows containing user IDs, reviews, and ratings. It employs Scikit-learn and NLTK for stop word removal and model building. However, it heavily depends on prior user rating history and fails for cold-start users with no previous interactions. [1]

The research paper "CRMS: A Collaborative Filtering System Integrated with AHP and Machine Learning" applies the Analytical Hierarchy Process combined with collaborative filtering to match user preferences with restaurant attributes such as location and ratings. Although it considers multiple criteria, it requires complex expert-driven weight assignments and is difficult to scale for general users. [2]

The system "Hybrid Restaurant Recommendation using LightFM on Yelp Dataset" combines collaborative filtering with user and item metadata using the LightFM Python library to address cold-start problems. However, the system is geographically restricted to Toronto-based restaurants and relies on Yelp's proprietary dataset, limiting its regional adaptability. [3]

The project "Food Recommendation System using Neural Collaborative Filtering on Zomato Data" scrapes restaurant data from Zomato and builds a user-restaurant rating matrix using neural collaborative filtering, with a Vue.js and Flask frontend. Although it provides city-level insights, the system depends on web scraping, making it fragile and unreliable when the source website structure changes. [4]

In summary, existing research mostly targets complex machine learning models, proprietary datasets, and user history-dependent filtering approaches. There is limited research on lightweight, dataset-driven recommendation systems that use structured filtering and ranking without relying on prior user behavior, which is addressed by the proposed TasteTrend system utilizing preference-based matching and scalable microservices architecture.

III. METHODOLOGY

The methodology of the TasteTrend system is based on a data-driven recommendation approach that processes user inputs and extracts relevant information from a structured dataset.

Initially, the user provides input parameters such as city, area (optional), and preferred dish or cuisine. These inputs are validated and forwarded to the backend processing module.

The dataset, which contains detailed information about restaurants including location, cuisine types, ratings, cost, and features, is preprocessed to ensure consistency and efficient querying.

A filtering mechanism is applied to extract restaurants that match the user's selected criteria. This includes:

- Location-based filtering (city and area)
- Cuisine-based filtering
- Optional keyword matching

After filtering, a ranking strategy is applied using key attributes such as:

- Restaurant rating
- Number of user votes
- Availability of services (delivery, seating, etc.)

The system then selects the top-k results (Top 3 restaurants) and sends them to the frontend for display. This approach ensures that users receive the most relevant and high-quality recommendations.

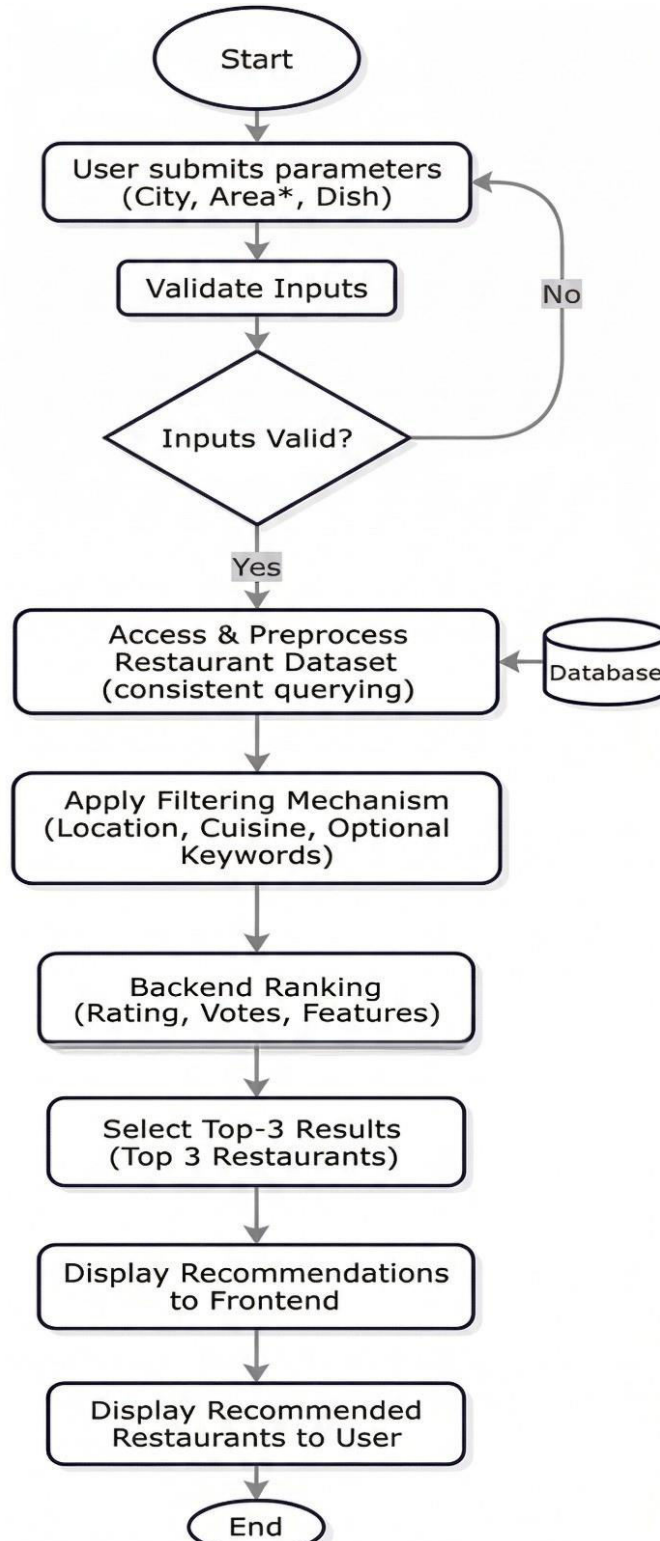


Fig 3.1: TasteTrend Restaurant Recommendation Methodology

IV. SYSTEM ARCHITECTURE

The TasteTrend system follows a modular microservices-based architecture to ensure scalability and efficient processing.

The architecture consists of the following components:

Frontend Module:

Provides an interactive user interface where users can input preferences and view recommendations.

Backend Module:

Handles API requests, processes user inputs, and communicates with data services.

Data Processing Services:

Independent services responsible for filtering, ranking, and processing dataset information.

Dataset Storage:

Stores restaurant data including attributes such as location, cuisine, ratings, and features.

The frontend communicates with the backend through REST APIs. The backend then interacts with the data processing services to retrieve filtered and ranked results. This modular design allows easy scalability and independent updates of system components.

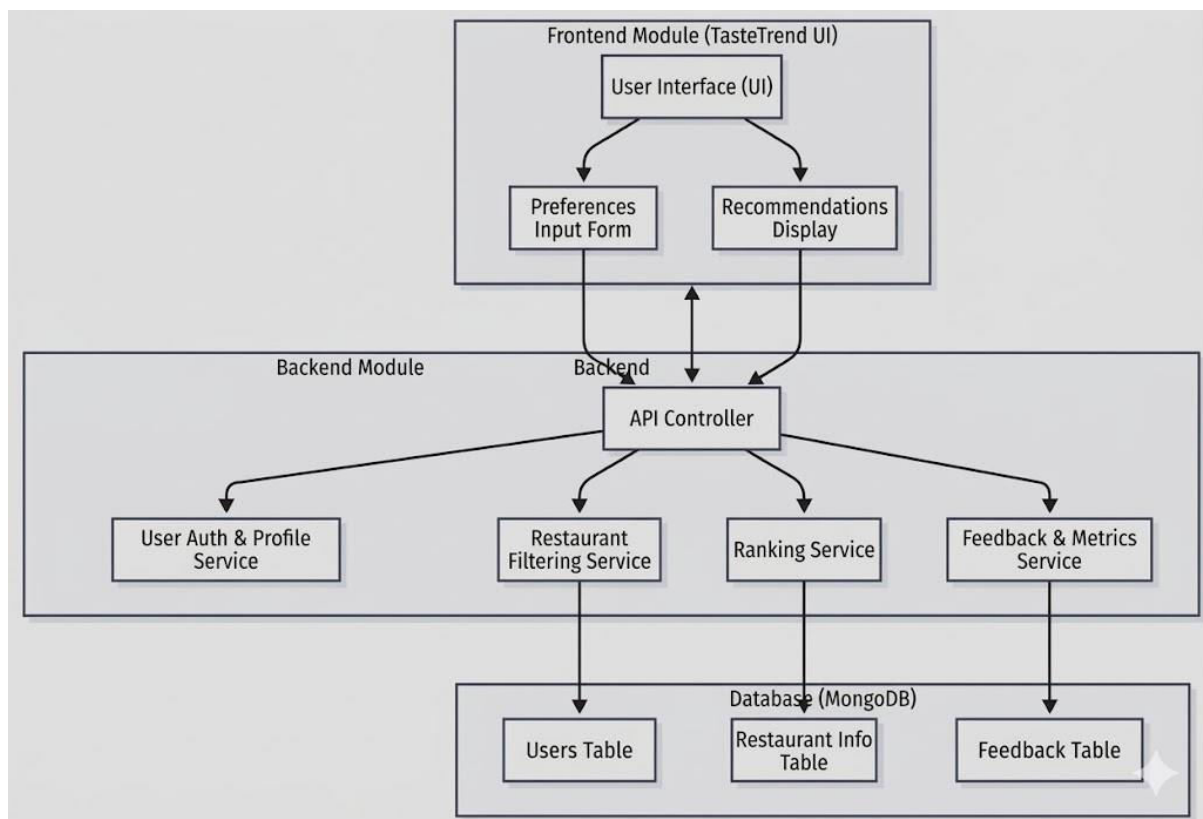


Fig 4.1 System Architecture

V. OUTPUT SCREENS

The TasteTrend system provides a user-friendly interface that enables seamless interaction.

The main interface allows users to select:

City

Area (optional)

Dish or cuisine type

After submitting the input, the system processes the data and displays the top recommended restaurants.

The results are presented in the form of cards, each containing:

Restaurant name

Location details

Rating and reviews

Cost estimation

Available features (delivery, seating, etc.)

This visual representation enhances user experience and simplifies decision-making by presenting only the most relevant options.

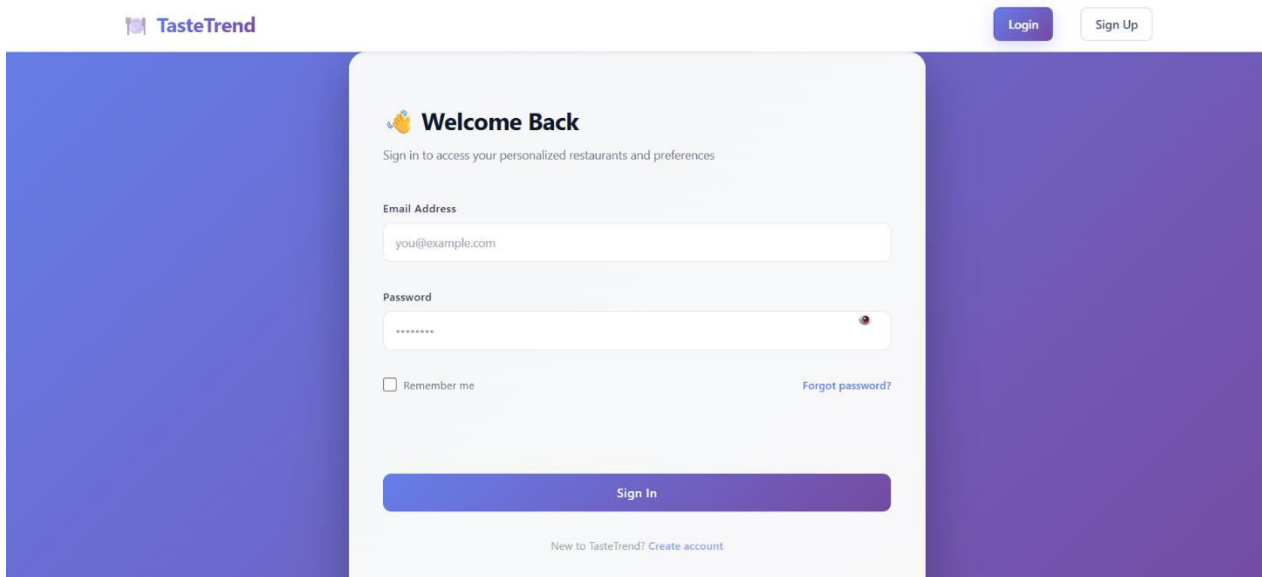
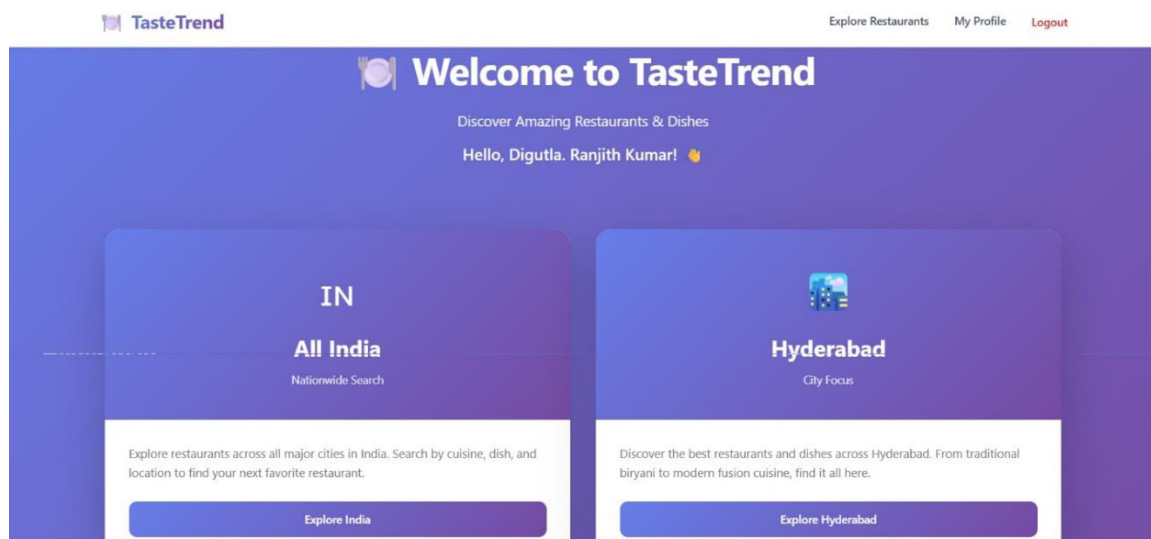


Fig 5.1 TasteTrend Login in page



5.2 Dashboard Page

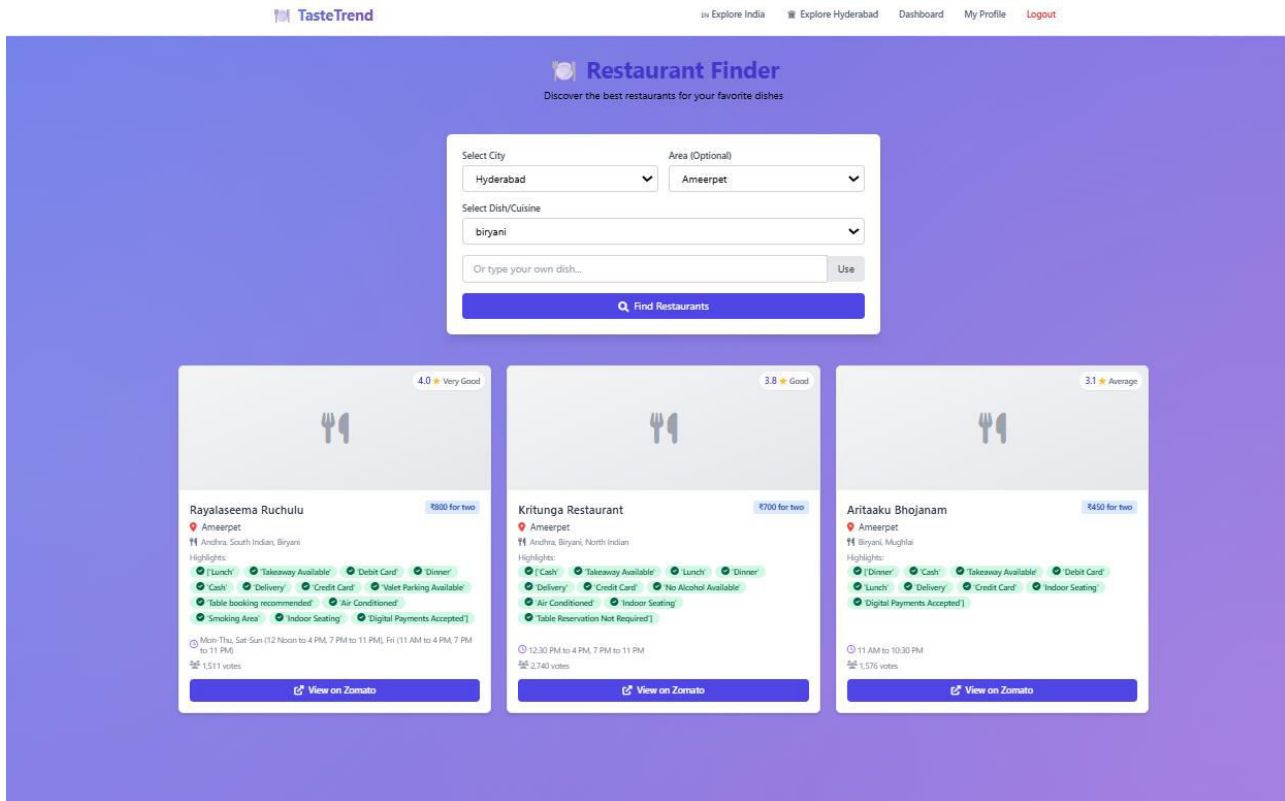


Fig 5.3 Restaurant Finder Page

VI. CONCLUSION

In this project, a dataset-driven restaurant recommendation system named TasteTrend has been developed to provide personalized food suggestions based on user preferences. The system effectively utilizes structured restaurant data and applies filtering and ranking techniques to generate accurate recommendations.

The use of a microservices-based architecture ensures scalability and modularity, while the user-friendly interface enhances accessibility. Unlike complex machine learning systems, the proposed approach focuses on efficiency and practicality, making it suitable for real-world applications.

Overall, the system demonstrates how data-driven techniques can be used to build effective recommendation platforms and improve user experience in food discovery applications.

VII. FUTURE SCOPE

Although the TasteTrend system provides effective recommendations, several improvements can be made in the future. The system can be enhanced by incorporating advanced recommendation techniques such as collaborative filtering to improve personalization. Integration of real-time data sources and user feedback can further improve recommendation accuracy.

Additional features such as sorting options, price filters, and restaurant images can enhance user experience. The system can also be extended to support mobile applications and multiple cities with real-time updates.

Furthermore, deployment on cloud platforms and integration with external APIs can make the system more scalable and production-ready.

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