



WanderWise: Personalized Local Exploration Using Content-Based Filtering

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Project Guide
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Outline

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Introduction

Finding the perfect café or restaurant that matches your taste and preferences can often be challenging. WanderWise is an AI-powered platform designed to simplify this process by offering personalized recommendations based on user preferences, real-time location, and live data. By leveraging Machine Learning (ML) and Artificial Intelligence (AI), WanderWise ensures users discover the best dining spots tailored to their unique tastes.

Motivation

People often struggle to choose the right café or restaurant, as existing recommendation apps provide generic suggestions that lack personalization. WanderWise addresses this issue by utilizing AI-driven algorithms to deliver real-time, customized recommendations. By incorporating user feedback, sentiment analysis, and advanced filtering techniques, WanderWise ensures that every dining recommendation is relevant, data-driven, and tailored to the user's preferences for a better culinary experience..

Objectives

1. Personalized Restaurant Recommendations: Utilize Content-Based Filtering to suggest restaurants based on user preferences such as cuisine type, ratings, location, and price range, enhancing recommendation accuracy.
2. Sentiment Analysis of User Reviews: Implement Natural Language Processing (NLP) to analyze customer feedback and ratings, extracting insights for data-driven and trustworthy restaurant suggestions.
3. Popularity Tracking Algorithm: Implement a dynamic ranking system using average and total ratings to calculate restaurant popularity scores.
4. Dynamic Route Planning: Use GoMaps API to provide optimized travel routes, ensuring seamless navigation to the selected restaurant.

Literature Survey of the existing system

SR. NO	TITLE	AUTHOR	YEAR	OUTCOMES	METHODOLOGY	RESULT
1.	Restaurant Recommendation System for User Preference and Services Based on Rating and Amenities [1]	R.M. Gomathi, P. Ajitha, G. Hari Satya Krishna, I. Harsha Pranay	2019	Developed a restaurant recommendation system using sentiment analysis and natural language processing (NLP) to improve accuracy.	Analyzed TripAdvisor.com data, extracted features using NLP, and applied machine learning algorithms to classify and rank restaurants based on user preferences and reviews.	The system achieved 92.45% accuracy using NLP, outperforming other models like SVM (81.5%) and BPN (86.1%).

Literature Survey of the existing system

SR. NO	TITLE	AUTHOR	YEAR	OUTCOMES	METHODOLOGY	RESULT
2.	Restaurant Reviews Analysis Model Based on Machine Learning Algorithms [2]	Yan Jiang	2018	Developed a machine learning-based sentiment analysis model for restaurant reviews, improving decision-making for businesses and customers.	Used NLP, Sentiment Analysis, and Machine Learning (Supervised, Unsupervised, Reinforcement Learning) to classify and predict customer sentiments.	Enhanced review accuracy, reduced bias in ratings, and improved restaurant business strategies.

Literature Survey of the existing system

SR. NO	TITLE	AUTHOR	YEAR	OUTCOMES	METHODOLOGY	RESULT
3.	Predicting Restaurant Rating using Machine Learning and Comparison of Regression Models.[3]	J. Priya	2020	Created a predictive analytics model to analyze restaurant ratings and customer behavior patterns	Applied Regression Models like Random Forest, Linear Regression, Ridge Regression, Lasso, KNN, SVM, and Bayesian Regression.	Random Forest Regression showed the highest accuracy and lowest error in predicting restaurant ratings.

Limitations of existing systems

1. **Generic Recommendations:** Most existing platforms provide broad, one-size-fits-all suggestions that do not consider individual user preferences or evolving tastes.
2. **Lack of Updates:** Traditional systems may not update recommendations based on changing conditions or new data inputs, making them less responsive and reliable.
3. **Inaccurate Sentiment Analysis:** Reviews and ratings are often not properly analyzed, resulting in misleading recommendations that don't reflect actual user experiences.
4. **Limited Personalization & Learning :** Existing systems lack adaptive learning, meaning they do not refine suggestions based on user choices and preferences.

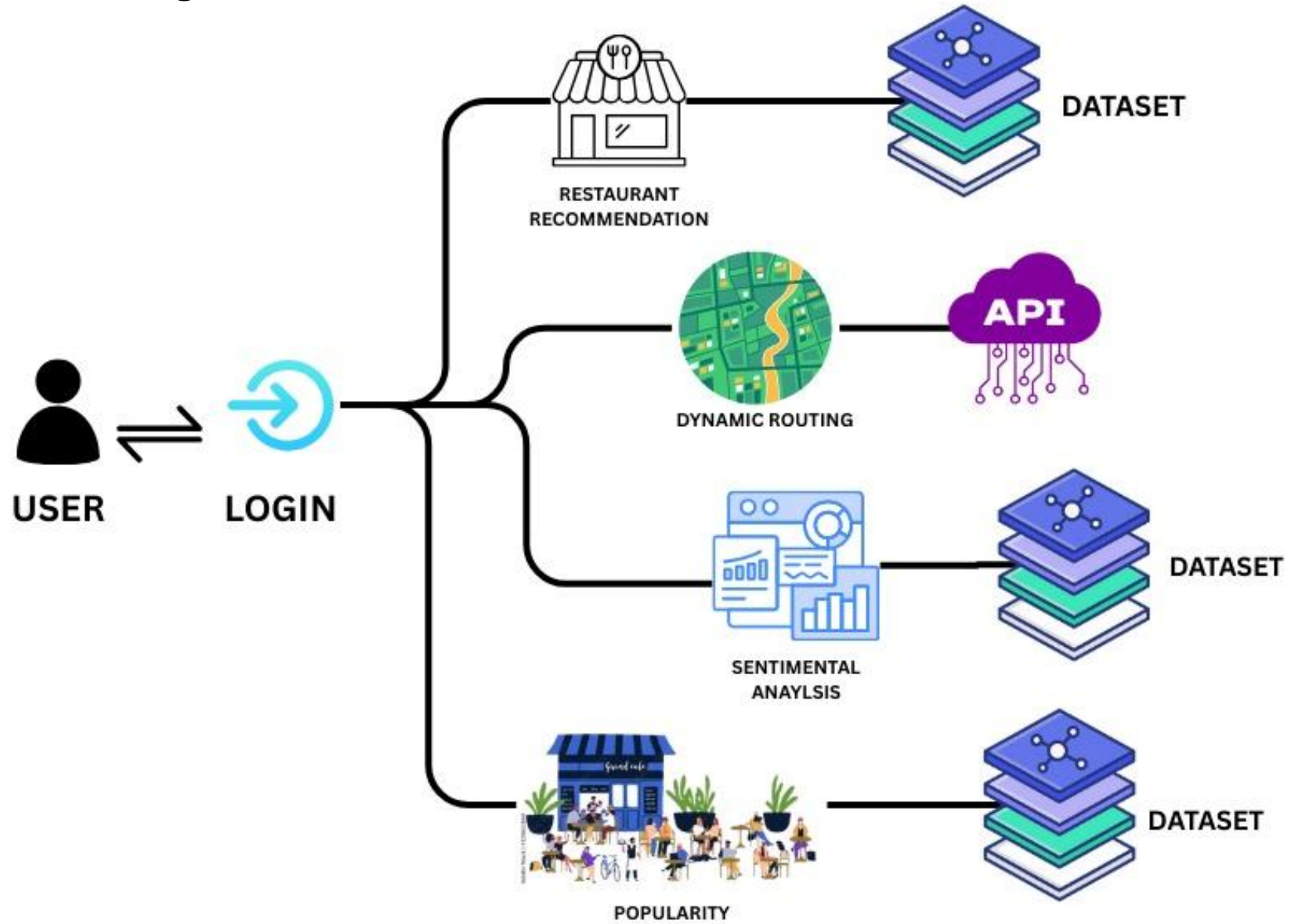
Problem statement

1. Existing café and restaurant recommendation systems often provide generic and non-personalized suggestions, making it difficult for users to find places that truly match their preferences.
2. Most platforms lack updates, meaning users do not receive recommendations based on factors like ratings, cuisine and area, leading to outdated and less relevant suggestions.
3. Current systems fail to analyze user reviews and sentiments effectively, often resulting in misleading ratings and unreliable recommendations, making it harder for users to make informed dining choices.

System Design

1. Smart Restaurant Recommendation – Provide personalized restaurant recommendations based on user preferences, such as cuisine, ratings, and price, using AI/ML algorithms.
2. Optimized Route Planning – Enable users to find the best route to their selected restaurant using an interactive map with real-time navigation and AI-based shortest path algorithms.
3. Sentiment Analysis for Insights – Analyze customer reviews using NLP techniques to provide sentiment trends, allowing users to make informed dining decisions based on yearly comparisons.
4. Popularity Tracking – Offer data on restaurant ratings, cuisine and area to help users choose the best, to visit their preferred restaurant.

System Design:



Technologies and methodologies

Front-End:

- HTML
- CSS
- JavaScript

Back-End:

- Python
- Flask

Algorithm:

- Content-Based Filtering
- NLP (Sentiment Analysis)
- Cosine similarity and TF-IDF

Dataset:

- Swiggy dataset(10 col, 8681 rows)

Implementation



Welcome to WanderWise
Login to explore the best places!

Email:

Password:

Login

Don't have an account? [Sign Up](#)

Fig. 1: (Sign In Page)

Fig. 2: (Home Page)



WanderWise

Personalized Recommendations Real-Time Popularity Sentiment Analysis Dynamic Route

Check the Popularity
Predict Restaurant Popularity

Select City:
-- Select City --

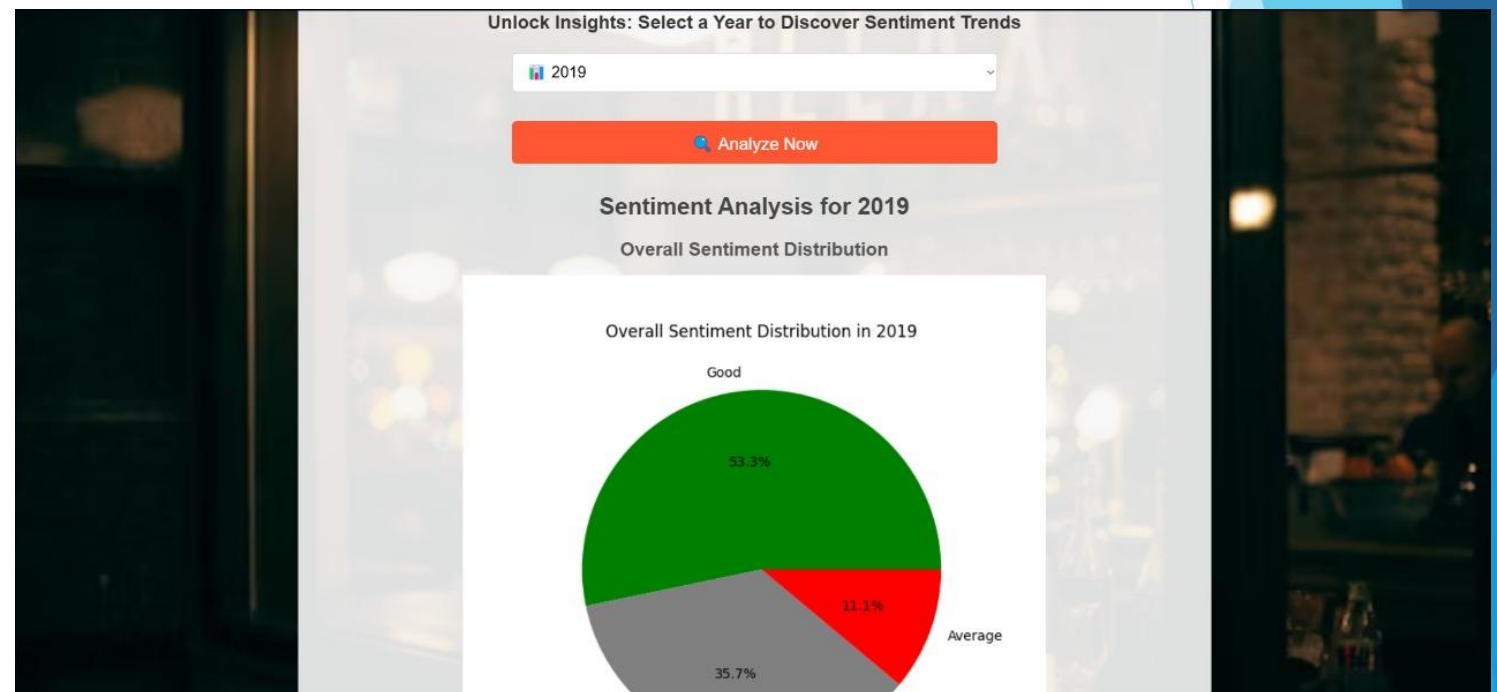
Select Area:
-- Select Area --

Enter Food Type:
Select Food Type

Predict Popularity

Fig 5:
(Popularity Prediction)

Fig 6:
(Sentimental analysis)



Conclusion

- WanderWise is a personalized local exploration platform that offers personalized café and restaurant recommendations based on user preferences, real-time location, and sentiment analysis.
- Using machine learning, APIs, and cosine similarity, it delivers smart, real-time, and data-driven dining suggestions.
- With advanced content-based filtering, WanderWise ensures a seamless and adaptive user experience, making every meal the right choice.

References

- 1 R. M. Gomathi, P. Ajitha, G. Hari Satya Krishna, I. Harsha Pranay, Restaurant Recommendation System for User Preference and Services Based on Rating and Amenities, October 2019
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- 2 Yen Jiang, Restaurant Reviews Analysis Model Based on Machine Learning Algorithms, December 2020
<https://ieeexplore.ieee.org/document/9382546/authors>
- [3]J. Priya, Predicting Restaurant Rating using Machine Learning and comparison of Regression Models, June 2021
<https://ieeexplore.ieee.org/document/9077859>

Thank You...!!