**PERSONALIZED RESTAURANT RECOMMENDER SYSTEM**

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**Team Members:**

1) Harris Lukundi  - harris.lukundi@student.moringaschool.com

2) Henry Rono - [henry.rono@student.moringaschool.com](mailto:henry.rono@student.moringaschool.com)

3) Beryl Agai - beryl.agai@student.moringaschool.com

4) Laaria Chris - laaria.chris@student.moringaschool.com

5) Lynete Wangari - lynette.wangari@student.moringaschool.com

6) Brian Muthama - brian.muthama@student.moringaschool.com

# Business Understanding

## Business Overview

The dining industry in various states across the United States is a dynamic and diverse landscape, offering a wide array of options from local eateries to upscale restaurants. However, both locals and tourists often struggle to find restaurants that align with their specific preferences in terms of location, cuisine, and quality. The sheer number of choices, coupled with the lack of a centralized platform for personalized recommendations, makes it challenging for users to make informed dining decisions.

Traditional methods of discovering restaurants, such as relying on word-of-mouth or general review platforms, often fall short in delivering tailored suggestions that cater to individual tastes. These solutions tend to be too broad and do not provide real-time, location-based recommendations, leaving users—especially those in unfamiliar areas—frustrated in their search for the perfect dining spot. The need for a more intelligent, user-centric solution is increasingly evident as the dining scene continues to grow.

The personalized restaurant recommender system addresses this gap by offering users customized dining suggestions based on their preferences and historical data. Utilizing advanced technologies like machine learning, the system provides real-time recommendations that are highly relevant and location-specific. The platform’s database includes detailed information about a vast range of restaurants across various states, capturing essential attributes like business details, reviews, ratings, and operational hours.

By analyzing this comprehensive dataset and integrating it with user profiles, the system can deliver personalized recommendations that match user preferences for cuisine, ambiance, proximity, and more. Whether a user is looking for a cozy brunch spot in California or an authentic BBQ joint in Texas, the system can quickly suggest top-rated options that meet their criteria. This tailored approach not only enhances the dining experience but also supports local businesses by driving targeted traffic to their establishments.

The platform's intuitive interface ensures that users can easily refine their search and explore new dining options with confidence. This personalized restaurant recommender system stands out as a valuable tool, helping users navigate the rich culinary landscape with ease and satisfaction.

## Stakeholder Definition

The possible stakeholders in this project include:

•   Users: Individuals seeking personalized dining recommendations based on their unique preferences.

•   Restaurant Owners: Local businesses aiming to attract targeted customers and increase foot traffic.

•   Investors/Partners: Entities interested in the platform’s growth, scalability, and profitability.

## Problem Statement

As the dining industry continues to expand, consumers are increasingly overwhelmed by the vast number of restaurant options available. Both locals and tourists face significant challenges in finding dining establishments that align with their specific preferences in terms of location, cuisine, and quality. The lack of a centralized platform that offers personalized recommendations exacerbates this problem, making it difficult for users to make informed dining decisions quickly and efficiently.

Existing solutions are often too generalized, failing to cater to individual tastes and preferences. Moreover, they typically do not provide real-time, location-based recommendations, leaving users—especially those in unfamiliar areas—struggling to identify suitable dining options. As the dining scene continues to grow and diversify, the need for an intelligent, user-friendly recommender system becomes increasingly urgent. Such a system would help users navigate the rich culinary landscape by providing tailored, real-time suggestions that enhance the overall dining experience.

## Proposed Solution

We propose developing a Restaurant Recommender System specifically for the United States. The system will:

* **Comprehensive Mapping:** Systematically map and categorize restaurants in the United States, grouping them by cuisine type, location, and other relevant factors.
* **Personalized Recommendations**: Enable users to input their current location and preferred cuisine type, delivering a ranked list of nearby restaurants based on their ratings and proximity.
* **Enhanced User Experience:** Offer an intuitive, user-friendly interface with integrated map features to simplify navigation and help users easily explore and select dining options.

## Metrics of Success

Metrics of Success will include:

•   **User Engagement**: Measured by the number of active users, frequency of use, and user retention rates.

•   **Recommendation Accuracy:** Evaluated through user feedback and satisfaction scores, focusing on how well the recommendations match user preferences.

•   **Business Impact:** Analyzed by the increase in traffic and revenue for partnered restaurants.

•   **Scalability:** Assessed by the system’s ability to handle an expanding user base and restaurant data across various states.

## Objectives

### Main Objective

Develop an intelligent, user-friendly restaurant recommender system that provides personalized recommendations based on user location and cuisine preferences, and additional data sources to ensure accuracy and relevance.

### Specific Objectives

1. Establish a comprehensive database of restaurants across the United States.
2. Provide content about different cuisines and dining etiquette to enrich the user experience.
3. Create machine learning algorithms to rank restaurants based on user location, cuisine preferences, and ratings.
4. Develop an intuitive, responsive web/mobile application.

## Challenges

Some of the challenges we may experience during this project include:

* **Data Collection and Quality:** Ensuring the platform has access to accurate and up-to-date restaurant data is crucial, as incomplete or outdated information can lead to poor recommendations and user dissatisfaction.
* **Scalability:** As the user base and the number of restaurants grow, the platform must efficiently handle increased data processing and maintain real-time performance across various states, ensuring a seamless user experience.
* **Competition:** Differentiating the platform from established competitors like Yelp and TripAdvisor is essential. The platform needs to offer unique value propositions to attract users in a crowded market.
* **Privacy and Data Security:** Protecting user data and ensuring compliance with privacy regulations is a significant challenge. Building trust with users regarding data usage is vital to maintaining their engagement and loyalty.