**Project: Personalized Restaurant Menu Recommendation System with NLP**

**Objective**

Develop a personalized restaurant menu recommendation system using TensorFlow, deep learning models, generative AI principles, and NLP techniques. The system will recommend meals to customers based on their preferences, historical order data, menu item descriptions, and customer reviews.

**Components**

1. **Data Collection and Preprocessing**
2. **NLP for Text Analysis**
3. **Model Training with TensorFlow**
4. **Generative AI for Menu Suggestions**
5. **RAG for Enhancing Recommendations**
6. **Integration and Testing**

**1. Data Collection and Preprocessing**

**Dataset Requirements:**

* Customer profiles (age, gender, preferences, dietary restrictions, etc.)
* Historical order data (customer ID, order ID, items ordered, ratings)
* Menu items (item ID, description, ingredients, category)
* Customer reviews (customer ID, item ID, review text, rating)

**Tasks:**

* Load and preprocess the data
* Handle missing values and normalize the data
* Split data into training and testing sets