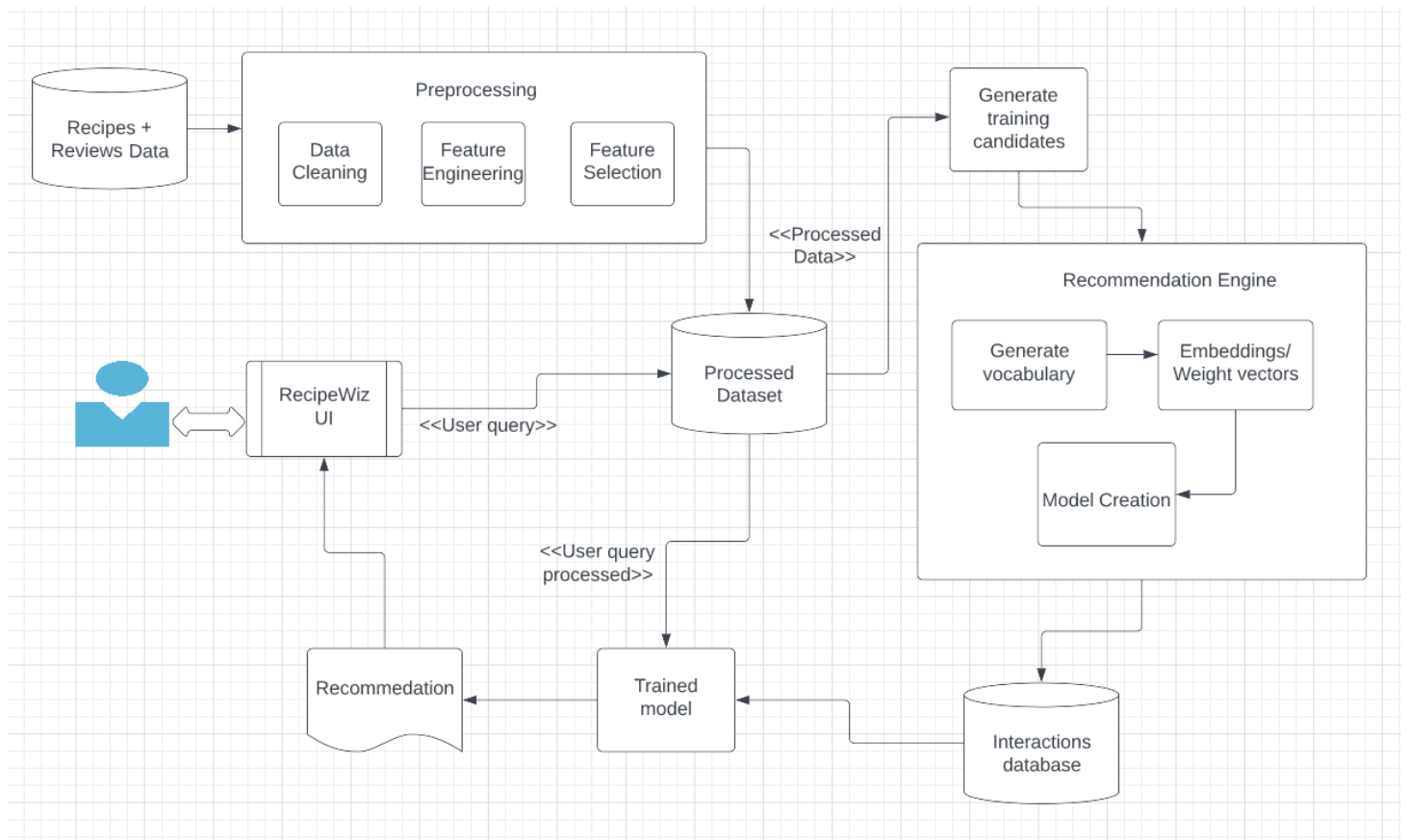**ODETOCODE**

RecipeWiz

Recipes Recommendation System
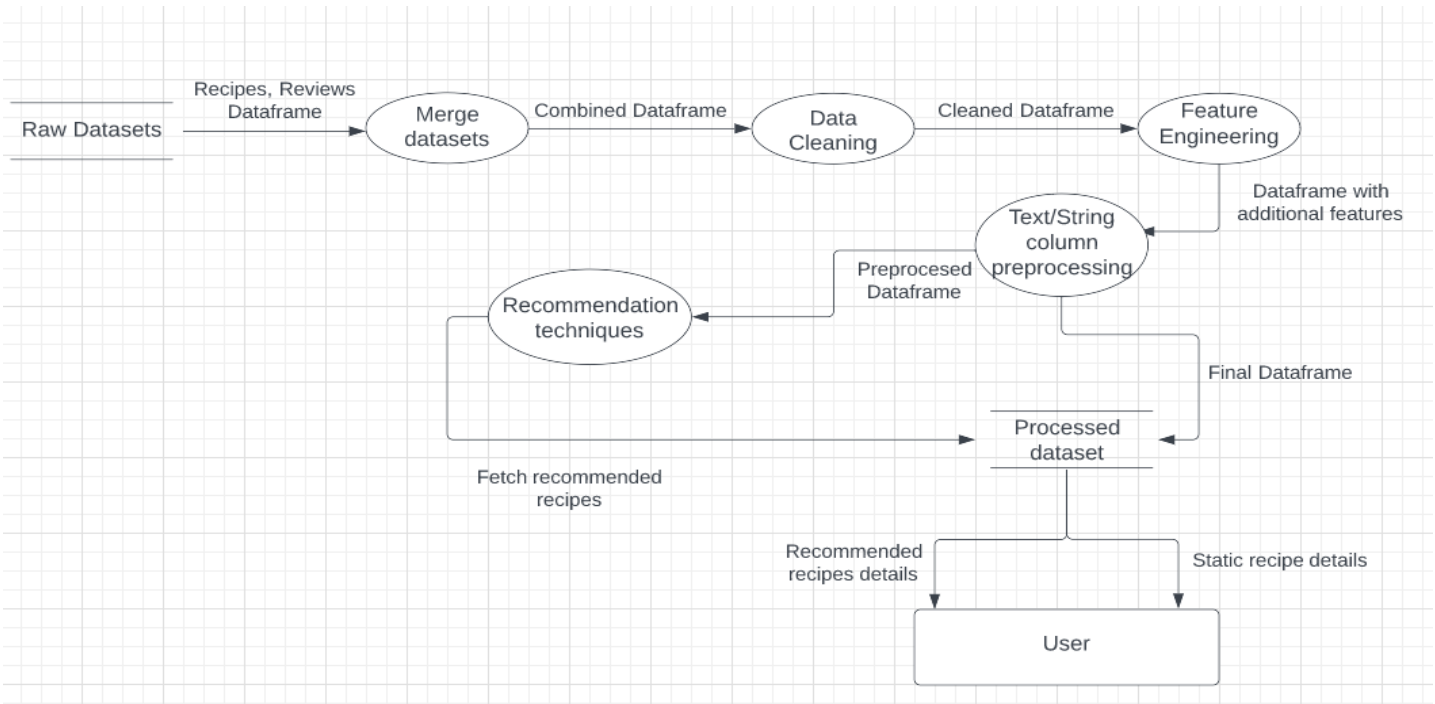
Submitted By :

Soumyendra Shrivastava (016670121)
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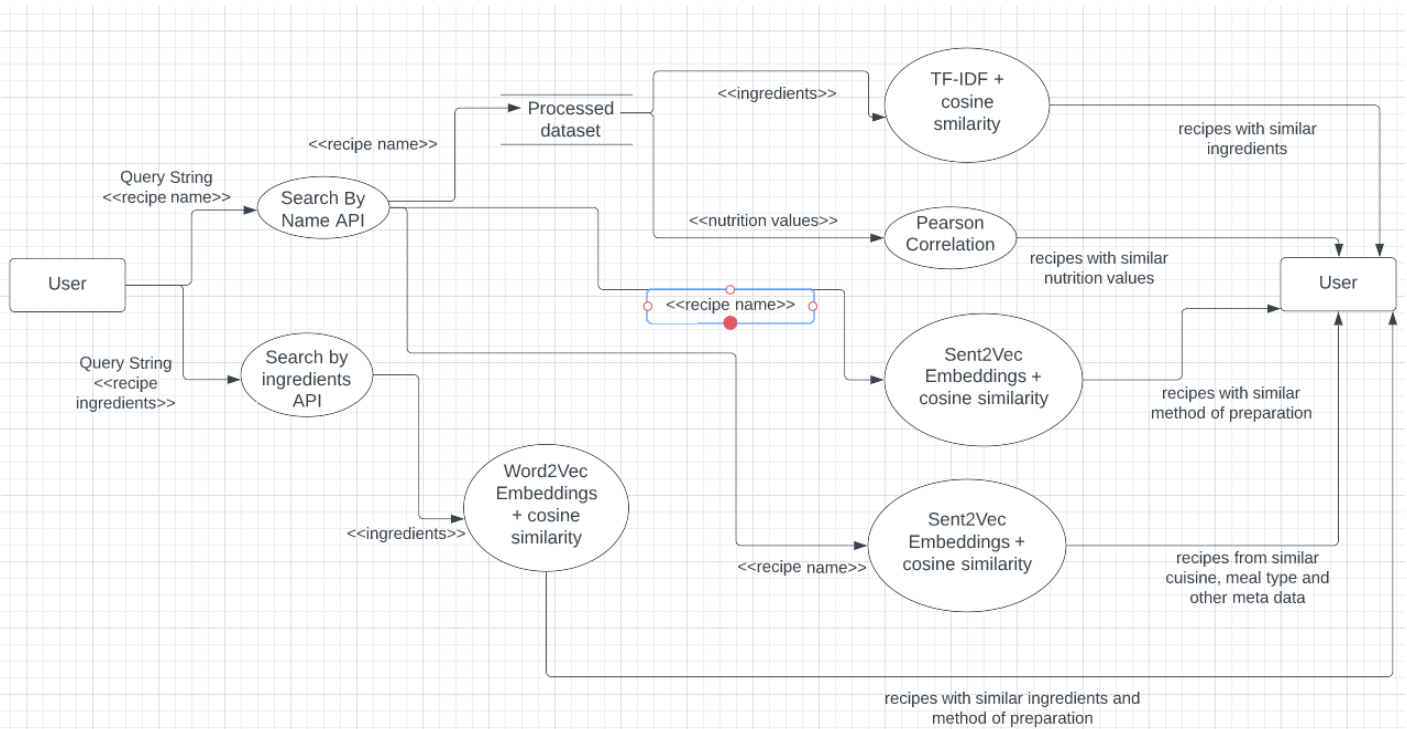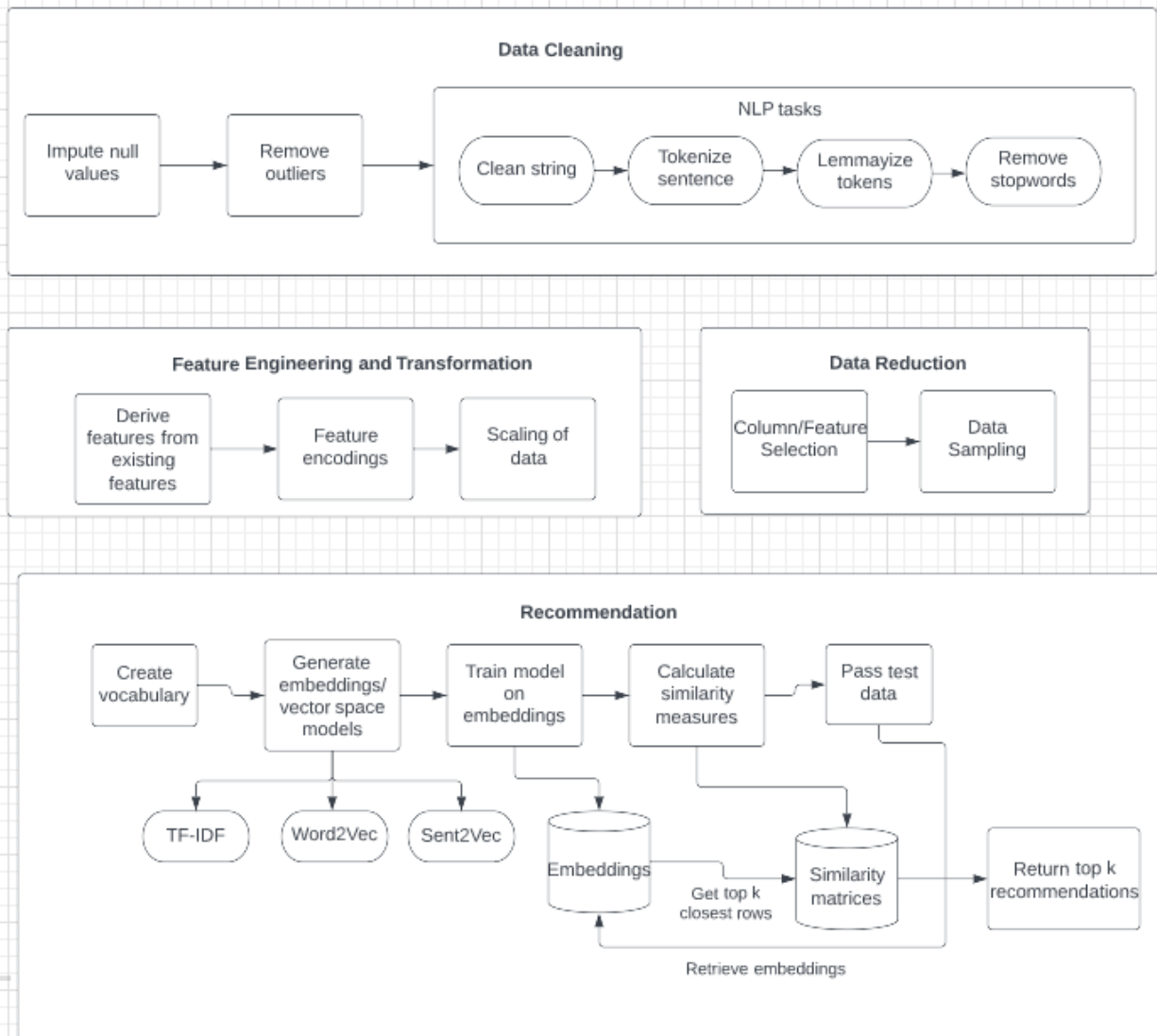
High level architecture of recommendation system

High level data flow diagram

Raw Datasets → **Recipes, Reviews Dataframe** → Merge datasets → **Combined Dataframe** → Data Cleaning → **Cleaned Dataframe** → Feature Engineering

Feature Engineering → **Dataframe with additional features** → Text/String column preprocessing

Text/String column preprocessing → **Preprocesed Dataframe** → Recommendation techniques

Text/String column preprocessing → **Final Dataframe** → Processed dataset

Recommendation techniques → **Fetch recommended recipes** → Processed dataset

Processed dataset → **Recommended recipes details** → User

Processed dataset → **Static recipe details** → User

User interaction data flow diagram

User → **Query String <<recipe name>>** → Search By Name API

Search By Name API → **<<recipe name>>** → Processed dataset

Processed dataset → **<<ingredients>>** → TF-IDF + cosine smilarity

TF-IDF + cosine smilarity → **recipes with similar ingredients** → User

Search By Name API → **<<nutrition values>>** → Pearson Correlation

Pearson Correlation → **recipes with similar nutrition values** → User

<<recipe name>> → Sent2Vec Embeddings + cosine similarity

Sent2Vec Embeddings + cosine similarity → **recipes with similar method of preparation** → User

User → **Query String <<recipe ingredients>>** → Search by ingredients API

Search by ingredients API → **<<ingredients>>** → Word2Vec Embeddings + cosine similarity

Word2Vec Embeddings + cosine similarity → **<<recipe name>>** → Sent2Vec Embeddings + cosine similarity

Sent2Vec Embeddings + cosine similarity → **recipes from similar cuisine, meal type and other meta data** → User

→ **recipes with similar ingredients and method of preparation** → User

Component Level Design of Recommendation Engine

Data Cleaning

Impute null values → Remove outliers →

NLP tasks

Clean string → Tokenize sentence → Lemmayize tokens → Remove stopwords

Feature Engineering and Transformation

Derive features from existing features → Feature encodings → Scaling of data

Data Reduction

Column/Feature Selection → Data Sampling

Recommendation

Create vocabulary → Generate embeddings/ vector space models → Train model on embeddings → Calculate similarity measures → Pass test data

TF-IDF   Word2Vec   Sent2Vec

Embeddings

Get top k closest rows

Similarity matrices → Return top k recommendations

Retrieve embeddings

High level architecture of web app

FRONTEND APPLICAITON
(Running on Local Machine)

State Management
in Local Storage

API Request

BACKEND SERVER
(Running on Local
Machine)

Model for
Recommender
System

Querying the Database

DATABASE SERVER

Database

Component level design of web application

Search Module

Querying

Recipe Module

Search on
Name

Search on
Ingredients

Similarity on the basis
of Ingredients

Similarity on the basis
of Name

Popular (by Rating)

Recently Added (by
Date)