

# NUTRIFUSION

Medically safe, personalized meals for your health condition and age .



# OVERVIEW

- NutriFusion provides personalized recipe recommendations via Mistral-7B, FAISS, and Cleanlab to guarantee safe and medically approved meal suggestions according to age and health status.“

Key point:

- Uses big data ( 70K+ ) like recipes and health records
- The deployment is done on "Gradio"
- Hallucination filtering" for safety.

## Real World Problems

- Dietary suggestions usually apply to everybody and are not effectively individualized.
- Though there are apps for everything, there is presently no one that would allow people some ingredient-level medical safety checks.
- No user-friendly source is available through which users can make health-safe versions of their cherished recipes.



## Why should we solve this ?

- Business Possibilities in Economically Personalized Nutrition Apps
- Impact on Health: Better Compliance in Dietary Plans Reduces Medical Costs.
- Measurable Goals:

Have a 0% Inclusion of Harmful Ingredients

Maintain an AI Output Hallucination Rate of <5%

# TARGET AUDIENCE & OPPORTUNITY

## Target audience



- Normal People

- Adults with diabetes, hypertension, obesity.
- Seniors needing age-specific nutrition.
- Fitness enthusiasts.
- Families seeking healthier meals.

- **Market Opportunity:** Growing demand for personalized, AI-driven dietary tools.



# Industry snapshot



- **Industry:** nutrition recommendations by AI based on age, health condition, and nutrition needs.
- **Market growth :**
  - 2023 – USD 11.88B
  - 2032- USD 46.87 ( 16.8 % )
- **Why Now?** (*WHO, IDF*)
- **Diabetes:** 537M adults → 783M by 2045
- **Hypertension:** 1.28B adults globally
- **Obesity:** 1 in 8 people worldwide

# How the domain works ?





# **DIFFERENTIATION**

- Compatible with any recipe downloaded or not.
- Removes toxic ingredients while automatically adding other healthy components.
- Control hallucination using Cleanlab-TLM.
- scalable (PySpark + Gradient GPU deployment).
- FAISS-based semantic search for finding similar recipes.





# IMPLEMENTED FEATURES

1. Personalized recipe input (dish + age + health condition).
2. FAISS-based similar recipe retrieval.
3. Mistral-7B recipe transformation.
4. Rule Engine for allowed/restricted ingredients.
5. Cleanlab validation for safety & trust scoring.
6. Nutrient breakdown output.
7. Big data cleaning & processing with PySpark.

# DATA GATHERING & INSIGHTS

## Data sources

- Spoonacular, Edamam, and OpenFoodFacts (recipes & nutrients)
- Kaggle Health dataset-age-related nutrient requirements
- 70,000 recipes + 70,000 health profiles

## Dataset overview

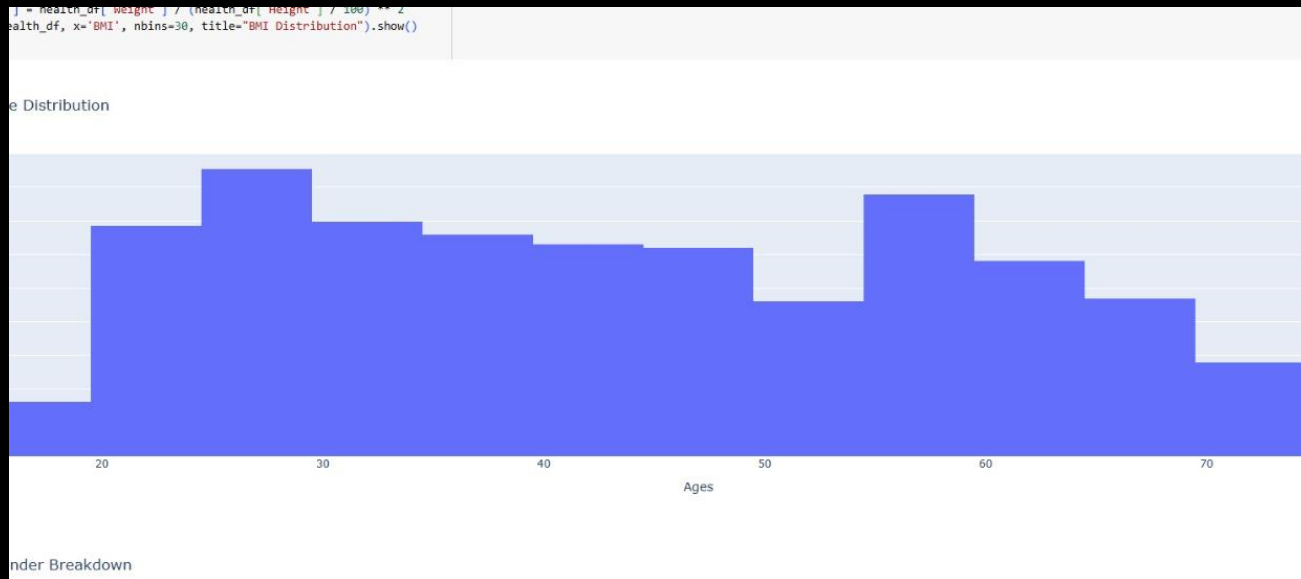
Dish name

Ingredients

Nutrient  
values

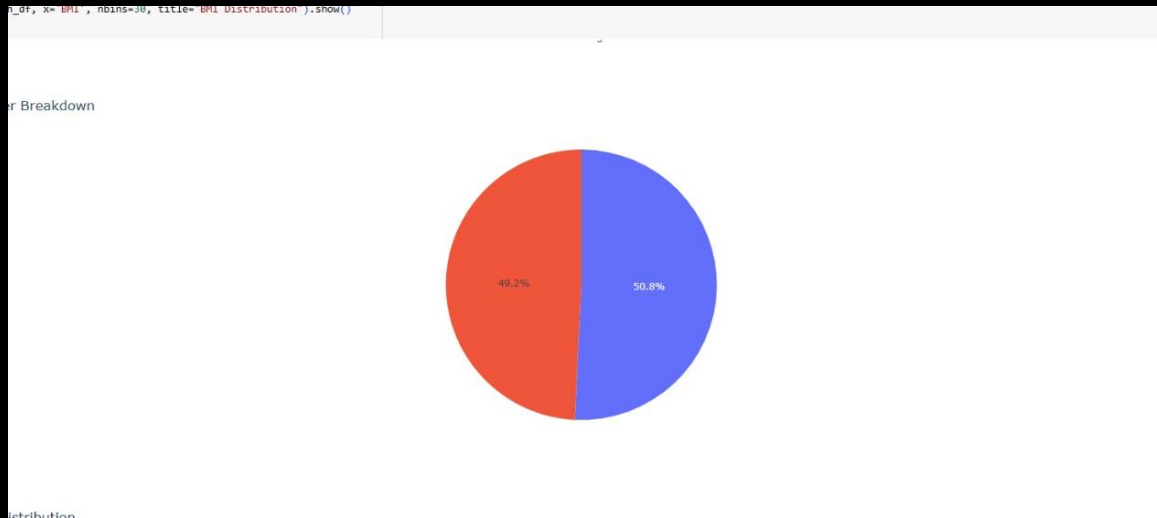
Allowed or  
restricted  
disease

# DATASET OVERVIEW

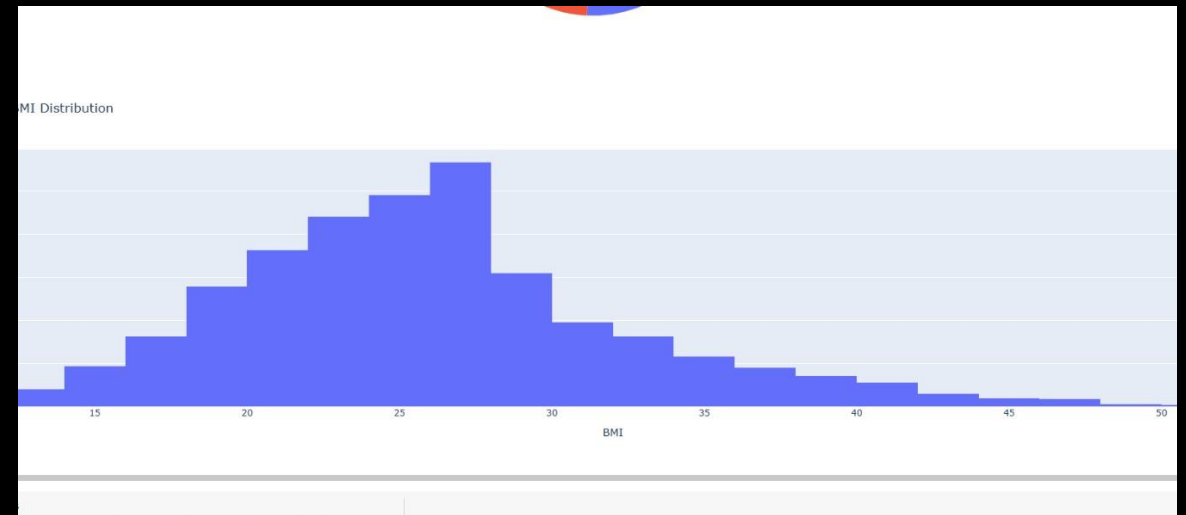


Age distribution

# DATASET OVERVIEW

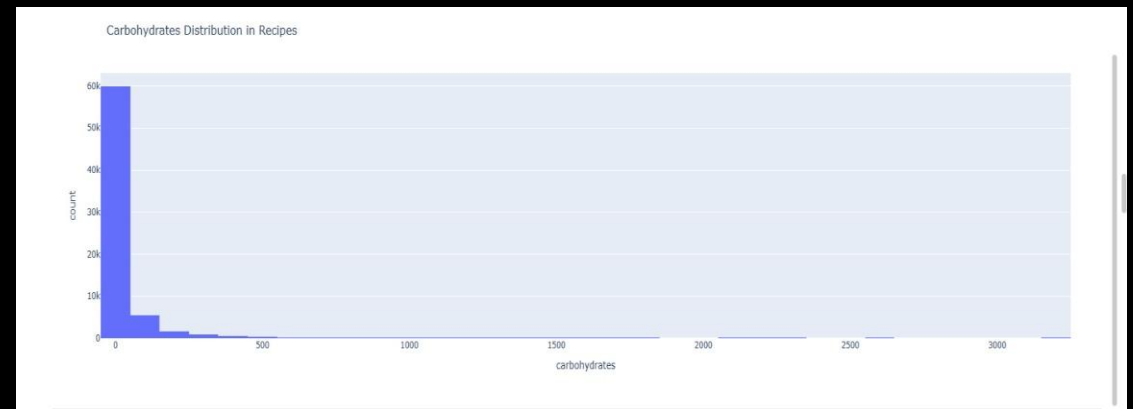
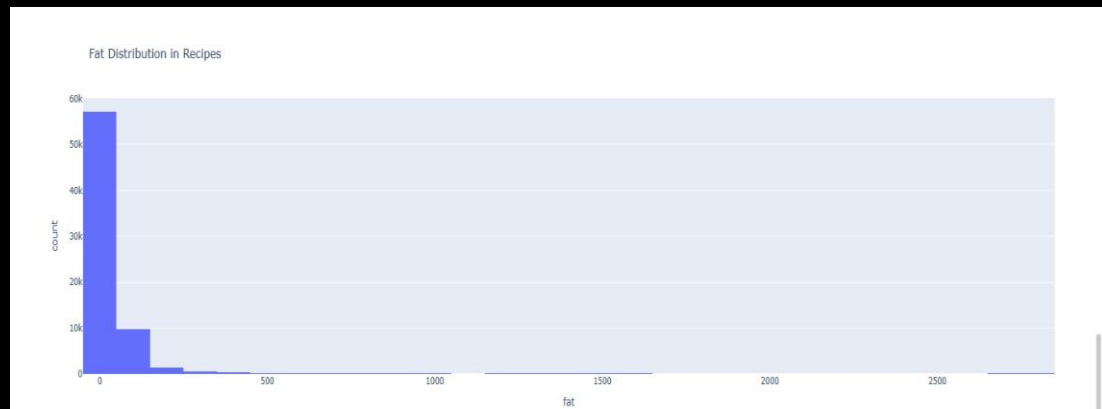
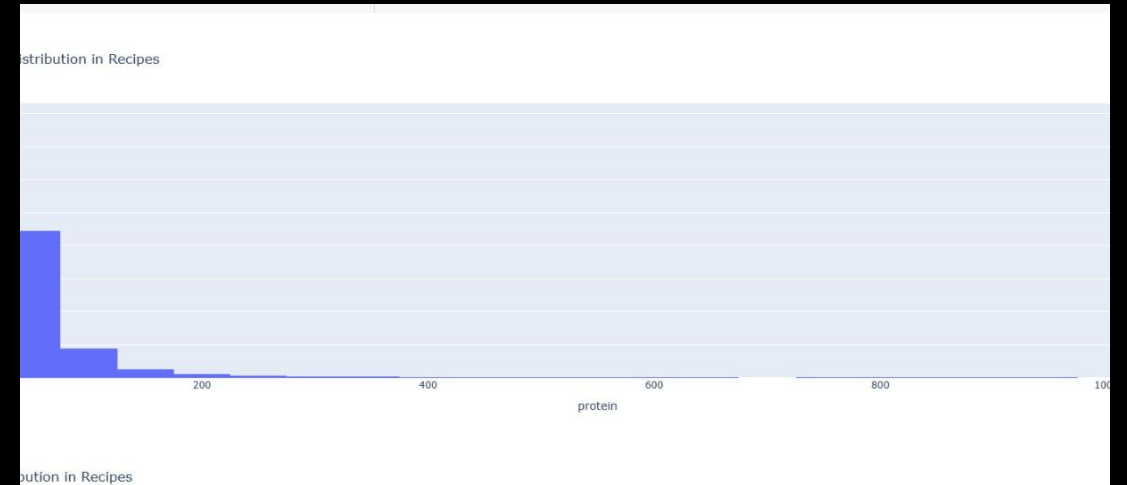
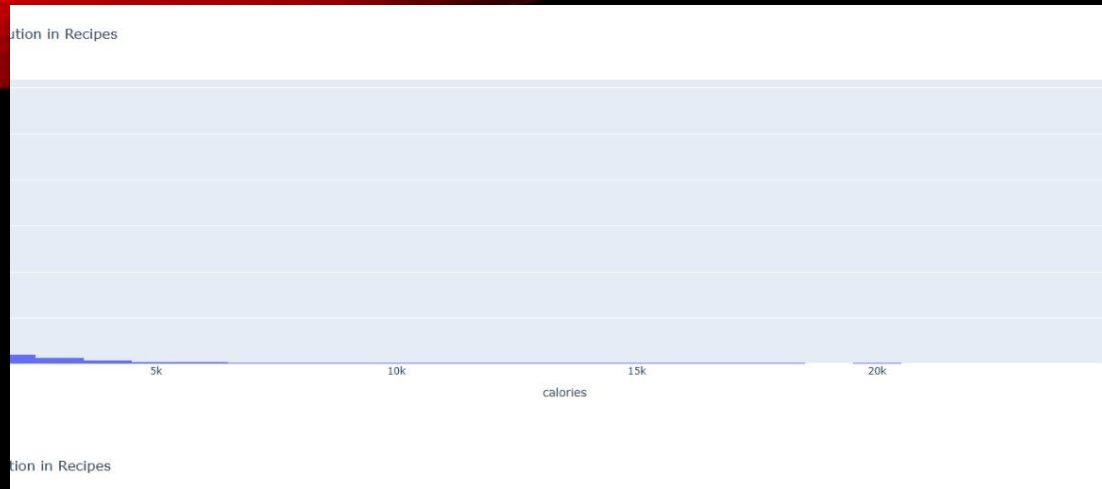


Gender Breakdown

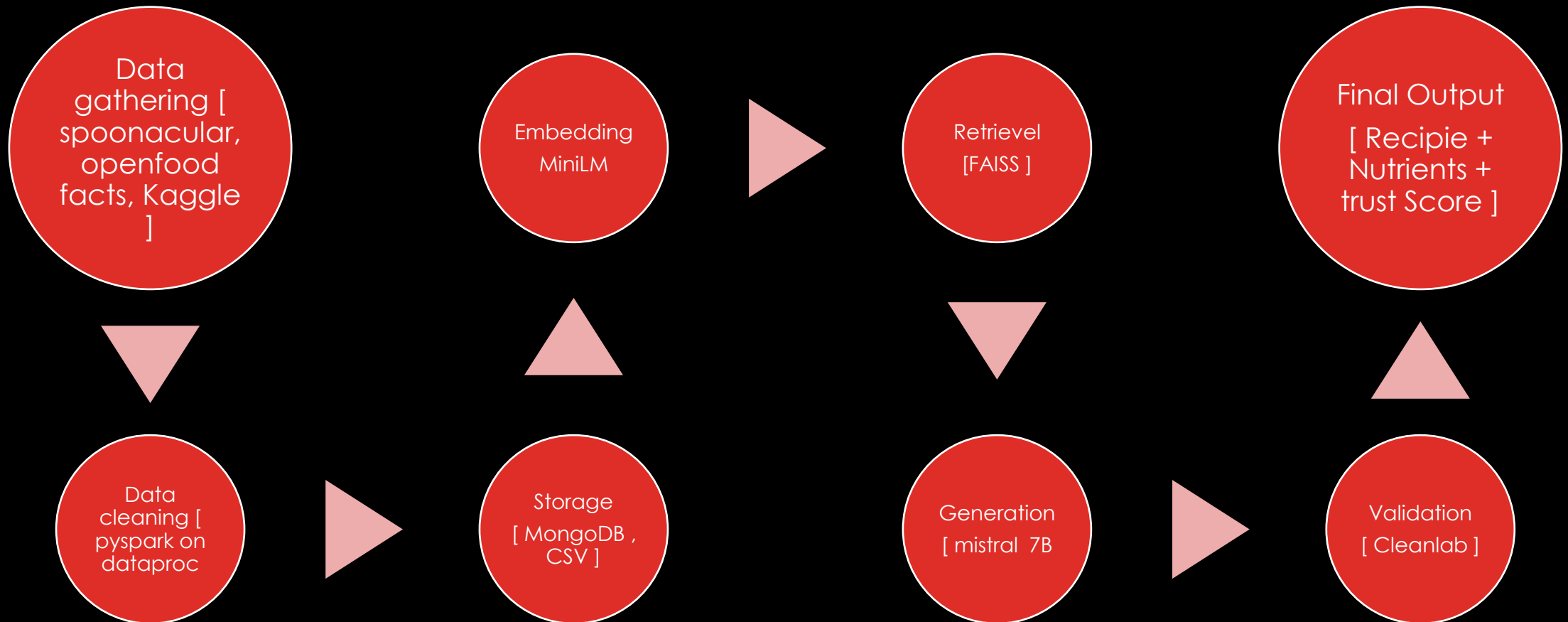


BMI Distribution

# Nutrient distribution Per Recipe

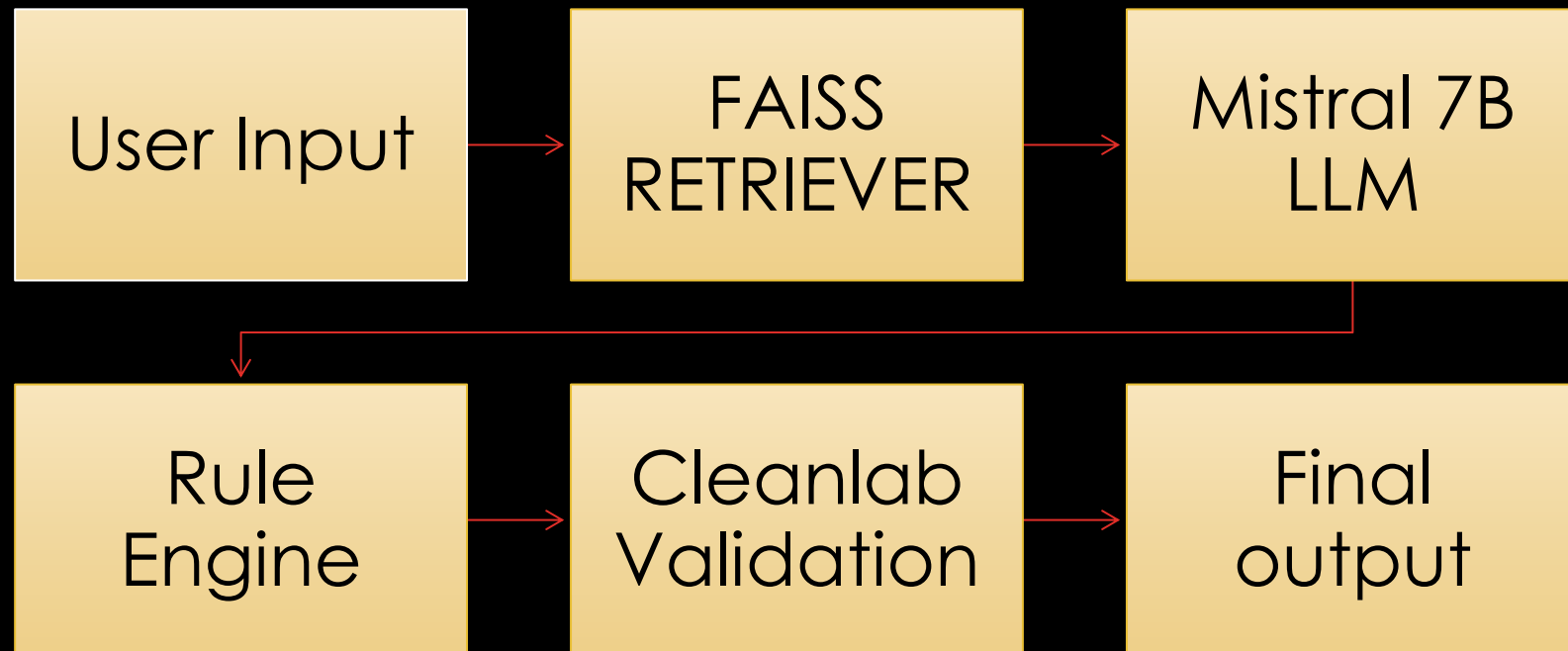


# BIG DATA PIPELINE





# WORKFLOW :



“

## TOOLS & TECHNOLOGES USED FOR THIS PROJECT:

”

- **LLM:** Mistral-7B-Instruct
- **Embedding:** MiniLM
- **Vector DB:** FAISS
- **Validation:** Cleanlab-TLM
- **Data Processing:** PySpark on Google Cloud Dataproc
- **Storage:** MongoDB
- **Deployment:** Gradio (GPU)

# GITHUB PROJECT BOARD

🌐 NutriFusion

Add status update



📅 Backlog

📅 Team capacity

📅 Current iteration

📅 Roadmap

📅 My items

+ New view

🔍 Filter by keyword or by field

Discard

Save

🟢 Todo 0 / 5 Estimate: 0

This item hasn't been started

+ Add item

🟡 In Progress 0 / 5 Estimate: 0

This is actively being worked on

+ Add item

🟣 Done 50 Estimate: 0

This has been completed

✓ NutriFusion #28  
Merging both Datasets from Nutritionix

✓ NutriFusion #82  
Model deployment

✓ NutriFusion #6  
Evaluate ML model performance using accuracy, precision, recall, and RMSE metrics.

✓ NutriFusion #5  
Build and train machine learning models using prepared datasets for nutrient analysis and recommendations.

✓ NutriFusion #7  
Perform thorough testing of application

+ Add item

# SONARQUBE CODE QUALITY

Embedded database should be used for evaluation purposes only. It doesn't support scaling, upgrading to a new SonarQube Server version, or migration to another database engine. [Learn more](#)

Keep your instance current and get the [latest SonarQube Community Build](#), available now.

**SonarQube community** Projects Issues Rules Quality Profiles Quality Gates Administration More

NutriFusion1 Bind project / main

Overview Issues Security Hotspots Code Measures Activity Project Settings Project Information

To benefit from more of SonarQube Community Build's features, [set up analysis in your favorite CI](#).

main Version 1.0.0 Set as homepage Take the Tour

Quality Gate **Passed** Last analysis 2 minutes ago

The last analysis has warnings. [See details](#)

New Code Overall Code

New Code Since August 11, 2025 Started 17 minutes ago


<b>New issues</b> <b>0</b> Required = 0	<b>Accepted issues</b> <b>0</b> Valid issues that were not fixed	<b>Coverage</b> Not computed
<b>Duplications</b> <b>0.0%</b> Required ≤ 3.0% On 193 New Lines.	<b>Security Hotspots</b> <b>0</b>	




## **FUTURE ENHANCEMENTS :**

- Multi-disease support
- Mobile app integration
- Multilingual recipes
- Grocery list generator

# DEMO VIDEO





## NutriVision - Personalized Recipe Review


Enter a dish name, age, and health condition to receive a safe and professional recipe review

Dish Name

Age

Health Condition




☒ Modified Ingredient List

 Nutritionist Explanation

Flag

Clear

Submit

Use via API  · Built with Gradio  · Settings 





# **CONCLUSION**

- Provides safe and personalized recipe recommendations using AI.
- Adjusts recipes based on user's age and health condition.
- Ensures medical safety through strict ingredient rules.
- Uses big data processing for accuracy and scalability.
- Helps users make healthier food choices easily.
- Has strong potential for real-world impact and future growth.

**THANK YOU**

