

Chef Sherbyny ChatBot



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Chef Sherbyny Documentation

# Overview

Chef Sherbyny is an AI-powered culinary assistant designed to deliver immersive food experiences through:

• Multi-cuisine recipe management  
• Interactive food trivia & quizzes  
• Personalized preference tracking  
• Smart NLP with typo resilience  
• Cultural storytelling (Arabic/English banter, food history)

# Architecture

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| --- | --- |
| Component | Key Responsibilities |
| Main.scala | Orchestrates workflows, UI interactions, and multilingual responses |
| FoodDB.scala | Central repository for dishes, trivia, and cuisine metadata |
| Analytics.scala | Tracks and analyze user behavior & preferences |
| QuizGenerator.scala | Dynamic quiz engine with adaptive scoring |
| Prase.scala | NLP pipeline for intent recognition |
| Typos.scala | typo correction engine |
| Personality | Personality layer with jokes, greetings |

# Key Features

## 1. Food Database System

Multi-Source Integration:  
• 100+ dishes across 5 cuisines (Egyptian, Lebanese, Korean, French, Italian)  
• Vegetarian/Non-vegetarian filters  
• Dish types (Main, Appetizer, Dessert)

Trivia Engine:  
• Historical/cultural food facts  
• Auto-suggestions after trivia sessions

## 2. Smart Interaction System

Contextual Command Routing:  
• Recipe requests (show steps for koshari)  
• Ingredient reverse-search (dishes with tahini)  
• Trivia triggers (tell me about Egyptian food history)

Personalization:  
• Name persistence (I'm Mira ➔ Got it, Mira!)  
• Favorite dish/cuisine tracking (save koshari as favorite)  
• Session-aware suggestions (Post-recipe dish recommendations)

## 3. Adaptive Quiz System

Features:  
• 5 dynamic questions per quiz  
• Multi-format answers (A-D, numbers, or typed responses)  
• Post-quiz analytics with historical tracking  
• Cuisine-specific difficulty tuning

Scoring:  
• Performance tiers (Beginner → Expert)  
• Retry prompts for scores <40%

## 4. NLP & Typo Resilience

Layers:  
• Input sanitization (cleanInput())  
• 100+ stopword filter (extractKeywords())  
• Typo correction (handleTypos()) with custom dictionary  
• Intent mapping via command.csv rules

## 5. Analytics & Personalization

Tracked Metrics:  
• Top 3 searched cuisines/dishes  
• Quiz success rates by category  
• Chat Log

Auto-Suggestions:  
• Post-recipe dish recommendations  
• Trivia ➔ Quiz auto-prompting

## 6. Error Handling

Graceful Failures:  
• No dish found → Similar dish suggestions  
• Missing trivia → Alternative cuisine offers  
• File I/O errors → In-memory fallback mode

User Guidance:  
• Auto-correct prompts (Did you mean "koshari"?)  
• Retry loops for invalid inputs

# Data Storage

|  |  |  |
| --- | --- | --- |
| File Type | Format | Example Files |
| Dish Data | Pipe-delimited (|) | egyptian\_foods.txt |
| Quiz Questions | Pipe-delimited (|) | lebanese\_questions.txt |
| User Preferences | Pipe-delimited (|) | user\_data.txt |
| Command Rules | CSV with priority tiers | command.csv |
| Typos | Colon-delimited (:) | typos.txt |

# Usage Examples

// Start personalized chat  
handleUserInput("Hi! I'm Layla") // Saves name, Arabic greeting

// Complex query handling  
handleUserInput("How to mak humus?") // → Fixes typos → Shows recipe

// Post-trivia engagement  
handleUserInput("Yes!") // → Launches quiz on last trivia cuisine

// Analytics integration  
handleUserInput("show my favorite dishes") // → Displays preference trends

# File Structure

src/main/scala/  
├── Analytics.scala # User analytics dashboard  
├── FoodDB.scala # Culinary knowledge graph  
├── Main.scala # Brain: Workflow orchestrator  
├── Personality.scala # Cultural personality layer  
├── Prase.scala # Intent decoder  
├── QuizGenerator.scala # Quiz maestro  
└── Typos.scala # Typo ninja  
data/  
├── \*\_foods.txt # Recipe repositories  
├── \*\_questions.txt # Quiz banks  
├── typos.txt # Typo-correction map  
└── commands.csv # Intent blueprints