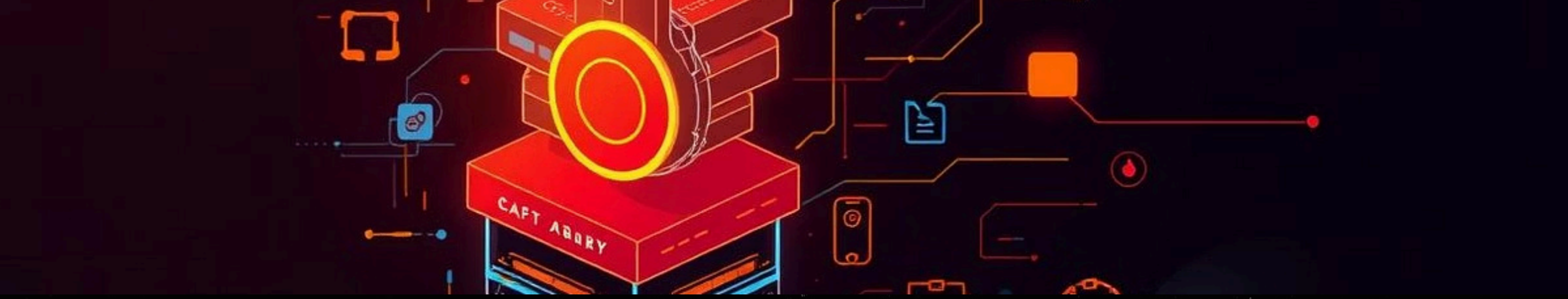
AI Recipe Generator: Transforming Cooking with Technology

Revolutionizing home cooking with AI-powered personalized recipes. Addressing overwhelmed cooks craving creative meal ideas using advanced technology.



Tech Stack Overview

Frontend

HTML, CSS, JavaScript, React, Redux for dynamic user interfaces.

Backend

Node.js with Express.js to handle API routing and server logic.

Database

MongoDB for flexible storage of recipes and user data.

AI Engine

Gemini API powers natural language recipe generation.

HTML, CSS, and JavaScript: The Foundation

HTML

Structures recipe content with semantic tags for accessibility.

CSS

Styles UI for clarity, using frameworks like Bootstrap for consistency.

JavaScript

Manages interactivity and real-time content updates on the page.

React and Redux: Dynamic Frontend

React Components

Reusable UI parts like ingredient lists and search bars enable fast rendering.

Redux State

Centralized management of user preferences and search history enhances UX.

Performance

Efficient rendering with response times under 50 milliseconds.

Node.js and Express: Powering the Backend

Node.js

Runs JavaScript on server for scalable backend functionality.

Express Framework

Handles API requests and routing for efficient server responses.

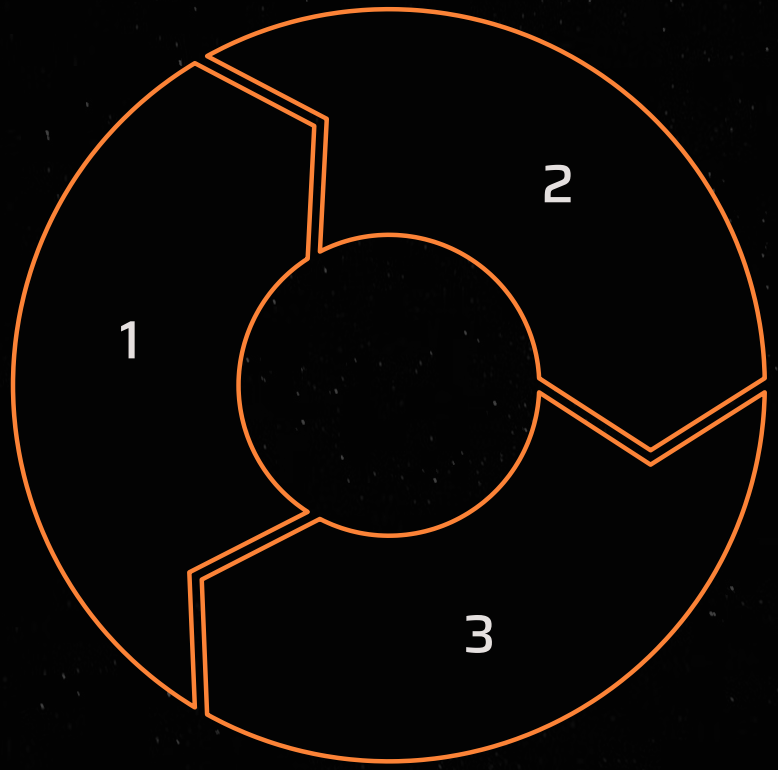
Scalability

Supports over 1000 concurrent requests per second smoothly.

MongoDB: Flexible Data Storage

NoSQL Flexibility

Schema-less design stores diverse recipe and user data.



Scalable Storage

Easily adapts to growing data with fast query performance.

Performance

Average query response times under 200 milliseconds.

Gemini API: AI-Powered Recipe Generation

1

Natural Language Processing

Understanding user inputs like ingredients and preferences.

2

Custom Recipe Creation

Generates personalized meals based on dietary needs.

3

High Precision

95% accuracy in matching recipes to user criteria.

Frontend Architecture: User Interface and Interaction

UI Components

Includes search bars, recipe displays, profiles, and settings.

State Management

Uses Redux to handle data like preferences and search results.

API Integration

Fetches recipe data from backend to update UI in real time.

Backend Architecture: Data Processing and API

1 API Endpoints

Manage recipe requests, authentication, and data storage.

2 AI Integration

Connect to Gemini API for generating tailored recipes.

3 Data Processing

Clean and structure inputs for optimal AI performance.

Future Enhancements and Conclusion

Personalization

Adaptive recommendations based on cooking history.

AI Expansion

Dietary analysis and health tracking integration.

Scalability

Supporting more users and data with robust infrastructure.

Goal

Revolutionize cooking with seamless AI technology.