

Hackathon Project Phases Template for the **AutoSage App** project.

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# Hackathon Project Phases Template

## Project Title:

Flavour Fusion: An AI-Driven Smart Recipe Recommendation and Cooking Assistant

## Team Name:

Code Red

## Team Members:

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## Phase-1: Brainstorming & Ideation

### Objective:

The Objective of **Flavour Fusion** is to develop an AI-driven recipe blogging platform that enhances the cooking experience by providing personalized, intelligent, and interactive culinary assistance.

This platform aims to:

1. Generate Unique Fusion Recipes
2. Enhance User Experience with AI Assistance
3. Encourage Community Engagement (multilingual translation)
4. Improve Cooking Efficiency
5. Provide Educational Insights

## Key Points:

### 1. Problem Statement:

- In today's fast-paced world, home cooks often struggle with finding new recipe ideas, managing kitchen inventory, accommodating dietary restrictions, and making ingredient substitutions when certain items are unavailable.
- Additionally, language barriers and complex cooking techniques further hinder accessibility, preventing users from exploring global cuisines.

### 2. Proposed Solution:

- Flavour Fusion aims to address these challenges by leveraging AI-powered recipe generation, smart ingredient pairing, pantry management, real-time cooking assistance, and multilingual support. By integrating HTML, CSS (frontend), Node.js (backend), Huggingface (database), and OpenAI APIs, the platform provides an intelligent and user-friendly experience for home cooks worldwide.
- This project will revolutionize home cooking by making it more personalized, efficient, and accessible for everyone

### 3. Target Users:

- **Beginners** need guidance and simple instructions.
- **Experienced cooks** Want creativity and experimentation.
- **People with dietary needs** require personalized suggestions.
- **Busy individuals** need quick and efficient solutions.
- **Health-conscious users** Want nutritional guidance.
- **Families and global users** Benefit from smart pantry tracking and multilingual support.

### 4. Expected Outcome:

- Flavour Fusion will provide an AI-powered, personalized, and interactive cooking experience, making meal preparation easier, smarter, and more efficient. Users will benefit from AI-generated recipes, smart ingredient substitutions, voice-guided cooking, and virtual pantry management, reducing food waste and saving time. The platform will enhance culinary learning, global accessibility, and community engagement, transforming everyday cooking into a seamless and enjoyable experience.

# Phase-2: Requirement Analysis

## Key Points:

### 1. Technical Requirements:

- Programming Language: **Python**
- Backend: **Python, JavaScript**
- Frontend: **HTML, CSS**
- Database: **Not required initially (API-based queries)**

### 2. Functional Requirements:

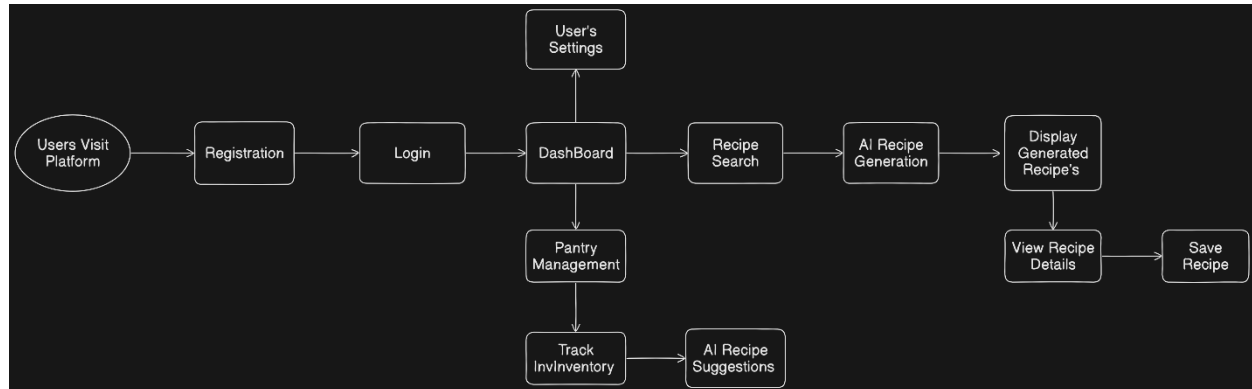
- Manage user profiles, preferences, and privacy settings.
- Users can post, edit, and rate recipes.
- Adjusts ingredient quantities based on servings.
- Multilingual recipe support.
- Affiliate marketing with grocery stores for ingredient purchases.

### 3. Constraints & Challenges:

- **AI Complexity & Performance** – Ensuring fast, accurate AI-generated recipes, ingredient substitutions, and flavor pairings without delays.
- **Data Quality & Multilingual Support** – Maintaining a reliable recipe dataset and providing accurate translations for diverse users.
- **User Engagement & Experience** – Encouraging content contributions, ensuring a seamless UI/UX, and optimizing voice assistant accuracy.
- **Security & Privacy** – Protecting user data, preventing AI biases, and ensuring secure storage for personalized preferences.
- **Scalability & Costs** – Managing hosting, AI processing expenses, and integrating efficient monetization strategies.

# Phase-3: Project Design

## Objective:



## Key Points:

### 1. System Architecture:

- User visit the platform and can register or log in.
- The authentication system ensures secure access to the dashboard.
- Dashboard acts as the central hub where users can access different features.
- Provides access to User Settings, Pantry Management, and Recipe Search.
- Users can track their inventory in Pantry Management.
- AI provides recipe suggestions based on available ingredients.
- Users can search for recipes manually or generate them using AI.
- AI suggests recipes based on user preferences or available ingredients.
- Generated recipes are displayed.
- Users can view recipe details and save recipes for later use.
- Users can configure their settings for a personalized experience.

### 2. User Flow:

- Step 1: Users Visit Platform
- Step 2: Dashboard Access – Directs to key features
- Step 3: Recipe Generation Process
- Step 4: Pantry Management and AI Recipe Suggestions

### 3. UI/UX Considerations:

- Seamless Onboarding and navigation.
- Minimalist Layout and Personalized Dashboard Design.
- Pantry Management UX.

- AI Recipe Generation UX.
- Saving and Sharing UX.

## Phase-4: Project Planning (Agile Methodologies)

### Objective:

Break down development tasks for efficient completion.

Sprint	Task	Priority	Duration	Deadline	Assigned To	Dependencies	Expected Outcome
Sprint 1	Frontend UI Development	● Medium	4 hours (Day 1)	End of Day 1	Premarvi	Home page, Sing in, Sign up pages, Dashboard page	Basic UI with input fields
Sprint 2	Code Search & Comparison	● High	6 hours (Day 1)	Mid-Day 2	Gnapika, Nandhu, Mythili	Chatgpt , copilot, Gemini ai, qwen 2.5	Search functionality with filters
Sprint 2	Error Handling & Debugging	● High	4 hours (Day 2)	Mid-Day 2	Gnapika, Nandhu, Mythili	Terminal, copilot, Google collab	Improved API stability
Sprint 3	Testing & UI Enhancements	● Medium	1.5 hours (Day 2)	Mid-Day 2	Entire Team	API response, UI layout completed	Responsive UI, better user experience
Sprint 3	Final Presentation & Deployment	● Low	1 hour (Day 2)	End of Day 2	Entire Team	Working prototype	Demo-ready project

### Sprint Planning with Priorities

#### Sprint 1 – Setup & Integration (Day 1)

- (● High Priority) Set up the **environment** & install dependencies.
- (● High Priority) Integrate **Google Gemini API**.
- (● Medium Priority) Build a **basic UI** with input fields.

#### Sprint 2 – Core Features & Debugging (Day 2)

- (● High Priority) Implement **search & comparison functionalities**.
- (● High Priority) Debug API issues & handle **errors in queries**.

## Sprint 3 – Testing, Enhancements & Submission (Day 2)

- (● Medium Priority) Test API responses, refine UI, & fix UI bugs.
  - (● Low Priority) Final **demo preparation & deployment**.
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## Phase-5: Project Development

### Key Points:

#### 1. Technology Stack Used:

- **Frontend:** ChatGPT, Microsoft Copilot
- **Backend:** GitHub, Google Collab, ChatGPT
- **Programming Language:** C#,HTML,CSS

#### 2. Development Process:

- **AI and Machine Learning:** Develop algorithms to identify flavor fusions and build a recommendation engine for personalized recipe suggestions
- **Platform Development:** Create an intuitive user interface, develop a robust backend, and integrate AI algorithms
- **Content Creation and Curation:** Produce high-quality blog posts, encourage user-generated content, and foster a community.
- **Testing and Feedback:** Conduct beta testing, gather feedback, and continuously improve the platform.
- **Launch and Marketing:** Develop a launch plan, implement a marketing strategy, and promote the platform.

#### 3. Challenges & Fixes:

- **Data Quality and Diversity**  
**Challenge:** Ensuring diverse and accurate recipe data.  
**Fix:** Collaborate with experts and regularly update the database.

## Phase-6: Functional & Performance Testing

### Objective:

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	Query "Generate a vegetarian pasta recipe"	AI should generate a relevant vegetarian pasta recipe.	✅ Passed	Gnapika
TC-002	Functional Testing	Query "Suggest an ingredient substitute for eggs"	AI should provide suitable egg substitutes.	✅ Passed	Mythili
TC-003	Performance Testing	AI response time under 1s for recipe generation	AI should return recipes within 1 second.	⚠ Needs Optimization	Nandu
TC-004	Bug Fixes & Improvements	Fixed incorrect ingredient Substitutions	Substitutions should be accurate.	❌ Failed	Preman vi
TC-005	Final Validation	Ensure UI is responsive across devices.	UI should work on mobile & desktop.	❌ Failed - UI broken on mobile	Whole Team
TC-006	Deployment Testing	Host the app using Streamlit Sharing	App should be accessible online.	❌ Failed	Whole Team

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## Final Submission

1. **Project Report Based on the templates**
2. **GitHub/Code Repository Link**
3. **Presentation**