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

Hackathon Project Phases Template

Project Title:
Flavour Fusion: An AI driven recipe blogging.

Team Name:
SYNAPSE

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Phase-1: Brainstorming & Ideation

Objective:

To create an engaging, personalized, and user-friendly recipe blog powered by AI, offering customized meal suggestions, step-by-step cooking guidance, and innovative culinary content tailored to individual preferences, dietary requirements, and global cuisines.

Key Points:

1. **Problem statement**

Traditional recipe blogs often lack personalization and fail to cater to individual dietary preferences, cooking skills, and time constraints. An AI-driven recipe blogging platform aims to address this by offering tailored recipes, interactive guidance, and smart meal planning solutions.

2. **Proposed Solution:**

The proposed solution is to develop an AI-driven recipe blogging platform that leverages machine learning to personalize recipe recommendations based on user preferences, dietary needs, and cooking expertise. The platform will provide step-by-step cooking instructions, smart meal planning tools, and interactive features to enhance user engagement and simplify the cooking experience.

3. Target Users:

Home Cooks
Health-Conscious Individuals
Busy Professionals and Students
Beginner Cooks
Food Enthusiasts and Bloggers
Fitness Enthusiasts

4. **Expected Outcome:**

The platform will deliver personalized recipe recommendations, smart meal planning, and interactive cooking guidance tailored to individual preferences and dietary needs. It will enhance user engagement, promote healthy eating, and foster a vibrant community of food enthusiasts.

Phase-2: Requirement Analysis

Objective:

Define the technical and functional requirements for the flavour fusion: AI driven recipe blogging

Key Points:

1. **Technical Requirements:**

○ Programming Language: **Python**
  ○ Backend: **Python**
  ○ Frontend: **React**
  ○ Database**: SQL**

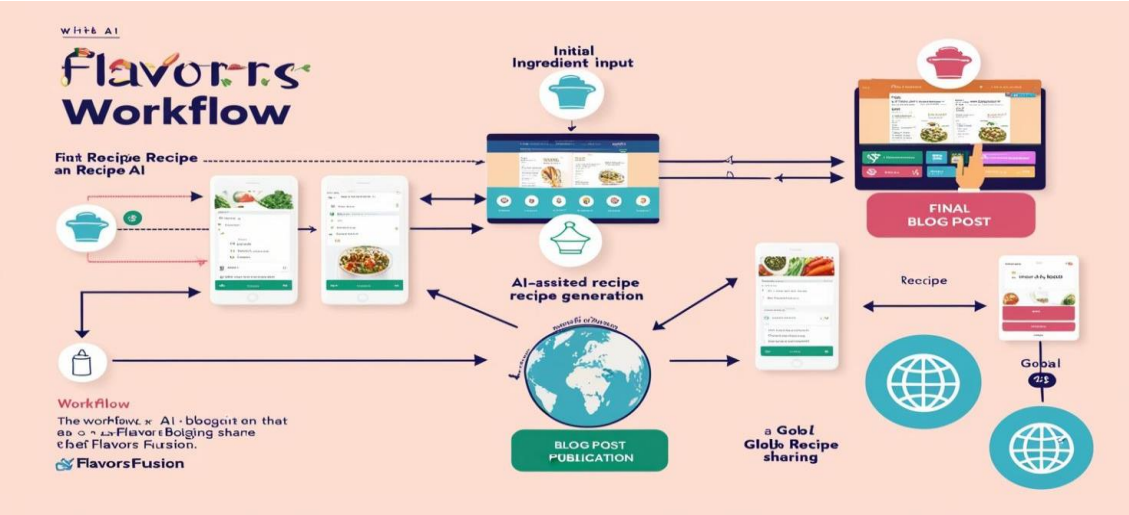
2.Functional Requirements:
User Registration and Authentication
Personalized Recipe Recommendations
Advanced Search and Filtering
Smart Meal Planning
Ingredient Substitution and Shopping List

3. **Constraints & Challenges:**
The platform faces constraints like ensuring high-quality recipe data, real-time AI-driven personalization, and seamless integration with third-party APIs. Key challenges include building accurate AI models for diverse dietary preferences, maintaining user engagement, and ensuring data privacy. Scalability, cultural inclusivity, and user trust in AI recommendations are also critical considerations

Phase-3: Project Design

Objective:

Develop the architecture and user flow of the application.



1. System Architecture:

The system architecture consists of a **Frontend Layer** (React.js/Vue.js) for user interaction, a **Backend Layer** (Node.js/Django) that handles business logic, user management, and API integrations, and an **AI/ML Layer** (TensorFlow/PyTorch) for personalized recipe recommendations and NLP processing. Data is managed through **SQL (PostgreSQL)** for structured data

2. User Flow:

User Onboarding & Personalization:

- User signs up, sets dietary preferences, and selects cuisine interests.

Recipe Discovery & Interaction:

- AI recommends personalized recipes; users browse, search, save, and plan meals.

Community Engagement & Feedback:

- Users share recipes, write blogs, engage with the community, and provide feedback for AI optimization.

3. UI/UX Considerations:

The UI/UX design should focus on a **clean, intuitive interface** with personalized recipe recommendations, easy navigation, and responsive design for all devices. Additionally, features like **voice-assisted cooking, step-by-step guides**, and **interactive meal planners** should enhance user engagement and accessibility.

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	Environment Setup & API Integration	🔴 High	6 hours (Day 1)	End of Day 1	Member 1	Google API Key, Python	API connection established & working
Sprint 1	Frontend UI Development	🟡 Medium	2 hours (Day 1)	End of Day 1	Member 2	API response format finalized	Basic UI with input fields
Sprint 2	AI chatbots responses	🔴 High	3 hours (Day 2)	Mid-Day 2	Member 1& 2	API response, UI elements ready	Search functionality with filters
Sprint 2	Error Handling & Debugging	🔴 High	1.5 hours (Day 2)	Mid-Day 2	Member 1&4	API logs, UI inputs	Improved API stability
Sprint 3	Testing & UI Enhancements	🟡 Medium	1.5 hours (Day 2)	Mid-Day 2	Member 2& 3	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**.

Phase-5: Project Development

Objective:

Implement core features of the Flavours of Fusion: An AI driven recipe blogging

Key Points:

1. **Technology Stack Used:**

   ○ **Frontend:** Python
   ○ **Backend:** React
   ○ **Programming Language:** Python

2. **Development Process:**

   Planning & Design: Define core features, user requirements, and design an intuitive UI/UX with AI-driven personalization in mind.

   Development & Integration: Develop the frontend (React.js/Vue.js), backend (Node.js/Django), integrate AI/ML models for recommendations, and manage data using PostgreSQL and MongoDB.

   Testing, Deployment & Maintenance: Conduct comprehensive testing, deploy on cloud platforms (AWS/Azure) with CI/CD pipelines, and continuously monitor, optimize, and update the platform.

3. **Challenges & Fixes:**

Challenge: Inaccurate AI recipe recommendations.
Fix: Continuously retrain AI models using updated user interaction data for improved personalization.
Challenge: Slow page load times for media-rich content.
Fix: Implement a Content Delivery Network (CDN) for faster global content delivery.
Challenge: Poor search performance with large recipe datasets.
Fix: Utilize efficient search engines like Elasticsearch for fast and relevant search results.

Phase-6: Functional & Performance Testing

Objective:

Ensure that the Flavours of fusion: An AI driven recipe blogging works as expected.

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	User Authentication and profiles	Authentication& profile should be verified	✅ Passed	Tester 1
TC-002	Functional Testing	AI powered cooking Assistant	API should return results quickly.	✅ Passed	Tester 2

TC-003	Performance Testing	Recipes and Images, Filters	API should return results quickly.	⚠ Needs Optimization	Tester 3
TC-004	Bug Fixes & Improvements	Fixed incorrect API responses.	Data accuracy should be improved.	☑ Fixed	Developer
TC-005	Final Validation	Ensure UI is responsive across devices.	UI should work on mobile & desktop.	✕ Failed - UI broken on mobile	Tester 2
TC-006	Deployment Testing	Host the app using Streamlit Sharing	App should be accessible online.	🚀 Deployed	DevOps

Final Submission

1. **Project Report Based on the templates**
2. **Demo Video (3-5 Minutes)**
3. **GitHub/Code Repository Link**
4. **Presentation**