Hackathon Project Phases Template

Project Title:

Flavour Fusion **App Using Gemini Flash**

Team Name:

The Pioneers

Team Members:

- Mahateja
- Ram Charan
- Sharath
- Ashwin

- Vardhan

Phase-1: Brainstorming & Ideation

Objective:

Develop an AI-powered recipe generation platform that creates personalized recipe descriptions using Google generative AI and API to cater user according to image of food.

Key Points:

1. **Problem Statement:**

   ○ Many people need cooking guidance within limited range of ingredients and maintain a healthy diet.
   ○ High food wastage due to lack of ingredient-based recipe suggestions
   ○ Helps in creating unique fusion recipes and urge to create new flavours can be done here

2. **Proposed Solution:**

   ○ An AI-powered application using **Gemini Flash** to provide **real-time food recipes with available ingredients.**
   ○ The app offers **maintenance tips** and **diet control insights** based on user preferences.
3. **Target Users:**

   ○ **Home cooks** looking for inspiration.
   ○ **Health-conscious individuals looking for delicious recipes**
   ○ **Users aiming to reduce food waste.**
4. **Expected Outcome:**

   ○ A functional **AI-powered recipe information app** that provides insights based on real-time data and user queries.

Phase-2: Requirement Analysis

Objective:

Define the technical and functional requirements for the Flavour Fusion App.

Key Points:

1. **Technical Requirements:**

   ○ Programming Language: **Python**
   ○ Backend: **Google Gemini Flash API, Flask**
   ○ Frontend: **Html, Css, Javascript**
   ○ Database: **Not required initially (API-based queries)**
2. **Functional Requirements:**

   ○ Ingredient based recipe generation
   ○ Smart ingredient substitution.
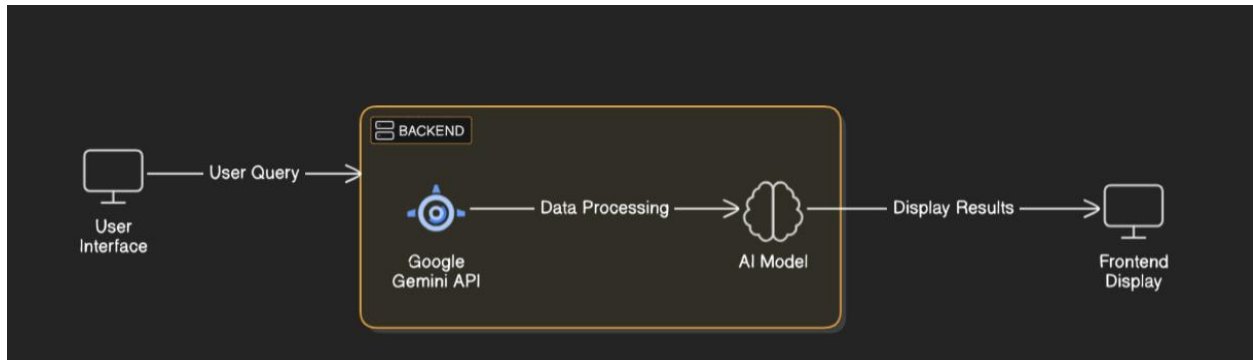   ○ Allow users to **reduce food wastage**.
3. **Constraints & Challenges:**

   ○ Ensuring real-time updates from **Gemini API**.
   ○ Handling **API rate limits** and optimizing API calls.
   ○ Providing a **smooth UI experience** with Flask.

Phase-3: Project Design

Objective:

Develop the architecture and user flow of the application.

Key Points:

1. **System Architecture:**

   ○ User enters ingerdients via UI.
   ○ Query is processed using **Google Gemini API**.
   ○ AI model fetches and processes the data.
   ○ The frontend displays **recipe, reviews.**

2. **User Flow:**

   ○ Step 1: User enters a query (e.g., "Chocolate cake").
   ○ Step 2: The backend **calls the Gemini Flash API** to retrieve recipe data.
   ○ Step 3: The app processes the data and **displays results** in an easy-to-read format.

3. **UI/UX Considerations:**

   ○ **Minimalist, user-friendly interface** for seamless navigation.

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	Mahateja	Google API Key, Python, Flask setup	API connection established & working
Sprint 1	Frontend UI Development	☐ Medium	2 hours (Day 1)	End of Day 1	Sharath	API response format finalized	Basic UI with input fields
Sprint 2	Error Handling & Debugging	☐ High	1.5 hours (Day 2)	Mid-Day 2	Vardhan & Ashwin	API logs, UI inputs	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**.

Phase-5: Project Development

Objective:

Implement core features of the Flavour Fusion App.

Key Points:

1. **Technology Stack Used:**

   - **Frontend:** Html, Css, javascript
   - **Backend:** Google Gemini Flash API, Flask
   - **Programming Language:** Python
2. **Development Process:**

   - Implement **API key authentication** and **Gemini API integration**.
3. **Challenges & Fixes:**

   - **Challenge:** Delayed API response times.
      Fix: Implement **caching** to store frequently queried results.
   - **Challenge:** Limited API calls per minute.
      Fix: Optimize queries to fetch **only necessary data**.

Phase-6: Functional & Performance Testing

Objective:

Ensure that the Flavour Fusion App works as expected.

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	Generate recipe based on image pasted	Relevant recipe generated	✅Passed	Ashwin
TC-002	Bug Fixes & Improvements	Fixed incorrect API responses.	Data accuracy should be improved.	✅Fixed	Developer
TC-003	Final Validation	Ensure UI is responsive across devices.	UI should work on mobile & desktop.	✖Failed - UI broken on mobile	Tester 2

Final Submission

1. Github link : https://github.com/Mahateja123/flavour-fusion-2