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

Hackathon Project Phases Template

Project Title:

Smart Nutrition Planner: AI-Powered Meal Planning, Vitamin Tracking & Diet Assistance

Team Name:

CodeXplorers

Team Members:

- Member 1: Sri Vidhya
- Member 2: Sania
- Member 3: Tejasree
- Member 4: G.Keerti

Phase-1: Brainstorming & Ideation

Objective:

To develop an AI-powered Healthy Eating Planner that helps users plan meals, track nutrients, and receive personalized dietary guidance for better nutrition.

Key Points:

1. **Problem Statement:**

   - Difficulty in meal planning, nutrient tracking, and accessing personalized dietary advice.
   - Leads to nutritional deficiencies and unhealthy eating habits.

2. **Proposed Solution:**

   - Plans meals based on preferences and health goals.
   - Tracks essential nutrients and vitamins.
   - Generates personalized diet plans.
   - Provides real-time AI expert advice

3. **Target Users:**

- Health-conscious individuals.
- People with specific dietary needs (diabetics, fitness enthusiasts, vegans).
- Busy professionals and students.
- Elderly individuals.

4. **Expected Outcome:**

- Efficient meal planning and nutrient tracking.
- Personalized diet recommendations.
- Real-time AI guidance for healthier eating habits.

Phase-2: Requirement Analysis

Objective:

To identify and define the functional and non-functional requirements needed to develop an AI-powered Healthy Eating Planner for efficient meal planning and personalized nutrition tracking.

Key Points:

1. **Technical Requirement**

   - **Languages & Tools**: HTML, CSS, JavaScript, Google Fonts, CSS Animations.
   - **Features**: Interactive UI, animated elements, responsive design.
   - **Future Enhancements**: AI/ML integration, database (Firebase/MongoDB), Nutrition API.

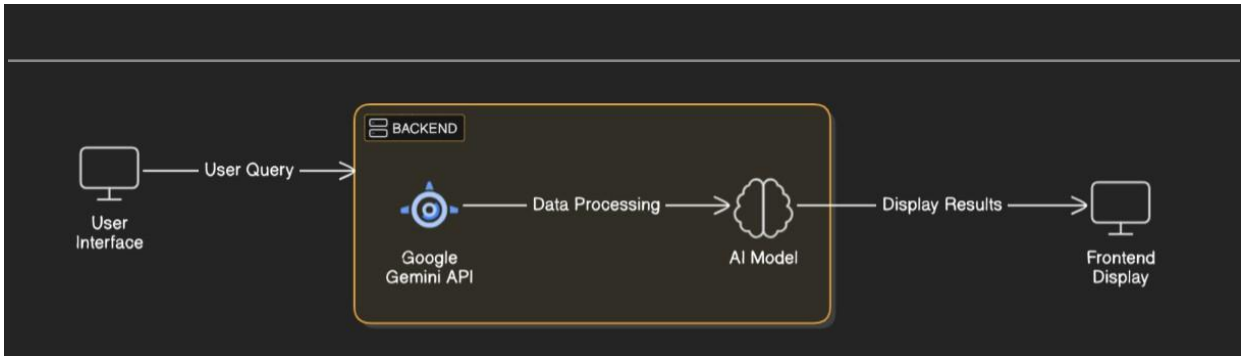
2. **Functional requirements:**
   - **Personalized Meal Planning** – Suggests meals based on user preferences.
   - **Nutrient Tracking** – Monitors essential vitamins and minerals.
   - **AI Diet Recommendations** – Provides real-time dietary advice.
   - **Food Nutrition Info** – Displays detailed nutritional values.

3. **Constraints & Challenges:**
   - **UI/UX Optimization** – Creating an engaging and user-friendly design.
   - **AI Integration** – Implementing accurate real-time diet suggestions.
   - **Reliable Data Sources** – Finding trustworthy nutrition databases.
   - **API Delay Issues** – Handling slow responses from nutrition APIs.

Phase-3: Project Design

Objective:

Develop the architecture and user flow of the application.



KeyPoints:

1. **System Architecture:**
    - User enters nutrition-related query via chat UI
    - Query is processed using **Google Gemini API**
    - AI model fetches and processes nutrition data
    - The frontend displays **nutrition information, recommendations, and analyses**
2. **User Flow:**
    - Step 1: User enters a query (e.g., "Best foods for vitamin D")
    - Step 2: The backend **calls the Gemini API** to retrieve nutrition data
    - Step 3: The app processes the data and **displays results** in an easy-to-read format with nutritional information
3. **UI/UX Considerations:**
    - **Clean, user-friendly interface** with sidebar navigation
    - **Multiple tools**: Nutrition Chat, Deficiency Detector, Meal Planner, Nutrition Analysis
    - **Formatted responses** with emojis for key nutrition terms and highlighted important information
    - **Responsive design** for desktop and mobile devices

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 & Gemini API Integration	High	6 hours (Day 1)	End of Day 1	Member 1	Google Gemini API Key, HTML/CSS /JS setup	API connection established & working
Sprint 1	Frontend UI Development for chat interface	Medium	2 hours (Day 1)	End of Day 1	Member 2	API response format finalized	Basic chat UI with message styling
Sprint 2	Nutrition Chat & Response Formatting	High	3 hours (Day 2)	Mid-Day 2	Member 2& 3	API response, UI elements ready	Working chat with formatted nutrition responses
Sprint 2	Error Handling & Loading states	High	1.5 hours (Day 2)	Mid-Day 2	Member 1&4	API logs, UI inputs	Improved UX with proper loading indicators
Sprint 3	Testing & Navigation Implementation	Medium	1.5 hours (Day 2)	Mid-Day 2	Member 3& 4	API response, UI layout completed	Additional pages (Deficiency Detector, Meal Planner, Nutrition analysis)
Sprint 3	Final Styling & Deployment	Low	1 hour (Day 2)	End of Day 2	Entire Team	Working prototype	Demo-ready NutriGen app

Sprint Planning with Priorities

Sprint 1 – Setup & Integration (Day 1)

(🔴 **High Priority)** Set up the **environment** & implement HTML/CSS/JS structure.

(🔴 **High Priority)** Integrate **Google Gemini API** for nutrition queries.

(🟡 **Medium Priority)** Build a **basic chat UI with message styling**.

Sprint 2 – Core Features & Debugging (Day 2)

(🔴 **High Priority)** Implement **nutrition chat & response formatting**.

(🔴 **High Priority)** Debug API issues & handle **errors in nutrition queries**.

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

(🟡 **Medium Priority)** Test API responses, implement navigation for other features, & fix UI bugs.

(🟢 **Low Priority)** Final **demo preparation & deployment** of NutriGen app.

Phase-5: Project Development

Objective:

Implement core features of the NutriGen App.

Key Points:

1. **Technology Stack Used:**

- **Frontend:** HTML, CSS, JavaScript
- **Backend:** Google Gemini API
- **Programming Language:** JavaScript

2. **Development Process:**

- Implement **API key authentication** and **Gemini API integration**.
- Develop **nutrition query and response formatting logic**.
- Optimize **chat interface for user experience and readability**.

3. **Challenges & Fixes:**

- **Challenge:** Delayed API response times. **Fix:** Implement **loading indicators** to improve user experience during waits.
- **Challenge:** Limited API calls per minute. **Fix:** Optimize queries with **targeted nutrition prompts** and implement **local greeting responses**.
- **Challenge:** Complex nutrition formatting. **Fix:** Create custom **response formatting logic** with nutrition-specific emojis and styling.

Phase-6: Functional & Performance Testing

Objective:

Ensure that the NutriGen App works as expected

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	Query "Best foods for vitamin-D “	Relevant vitamin D food sources should be displayed	✅ Passed	Tester 1
TC-002	Functional Testing	Query "Daily water intake requirements"	Hydration recommendations should be provided	✅ Passed	Tester 2
TC-003	Performance Testing	API response time under 2 seconds	API should return results quickly.	⚠️ Needs Optimization	Tester 3
TC-004	Bug Fixes & Improvements	Fixed emoji formatting for nutrition terms	Consistent emoji display for nutrition keyword	✅ Fixed	Developer
TC-005	Final Validation	Ensure navigation works across app sections	Sidebar navigation should switch between features	✅ Passed	Tester 2
TC-006	Deployment Testing	Host the app using Web hosting	App should be accessible online.	🚀 Deployed	DevOps

Final Submission

1. **Project Report Based on the templates**
2. **Demo Video (3-5 Minutes) :https://drive.google.com/file/d/1yoJdd45TWIbx-WSZDBrhSkOC9SzasfTA/view?usp=drive_link**
3. **GitHub/Code Repository Link : https://github.com/keertiI7/NutriGen-CodeXplorers**
4. **Presentation :** https://drive.google.com/file/d/1cWpMLC1gRgUeVLONV_olY48pgOkwV1fy/view?usp=drive_link