

# Hackathon Project Phases Template

## Project Title:

FitSync AI: Real-Time Fitness Adjustments with LLaMA3

## Team Name:

**FitBots**

Team XYZ

## Team Members:

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## Phase-1: Brainstorming & Ideation

### Objective:

**Develop a real-time fitness companion powered by LLaMA3 to deliver adaptive coaching, personalized workout plans, and instant feedback. FitSync AI enhances user safety, motivation, and performance by integrating seamlessly with wearables and devices, catering to diverse fitness goals and levels.**

### Key Points:

#### 1. Problem Statement:

Many fitness enthusiasts struggle with maintaining proper form, staying motivated, and receiving personalized guidance during workouts. Existing solutions often lack real-time adaptability, making it difficult to achieve fitness goals efficiently and safely.

## 2. Proposed Solution:

**FitSync AI leverages LLaMA3-powered real-time coaching to provide instant feedback, dynamic workout adjustments, and personalized fitness plans. By integrating with wearables and fitness devices, it ensures seamless tracking, improved user engagement, and enhanced workout safety.**

## 3. Target Users:

- Fitness enthusiasts of all levels, from beginners to advanced athletes.
- Individuals seeking personalized fitness guidance.
- Users with specific fitness goals (e.g., weight loss, muscle building, or recovery).
- Professionals and athletes aiming for performance optimization

## 4. Expected Outcome:

**FitSync AI will deliver a seamless fitness experience by offering real-time, adaptive guidance, reducing the risk of injury, boosting motivation, and enabling users to achieve their fitness goals more effectively and safely. It will set a new standard for intelligent, user-centered fitness solutions.**

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# Phase-2: Requirement Analysis

## Objective:

**To create a real-time fitness companion powered by LLaMA3, delivering personalized coaching, adaptive workout plans, and instant feedback to enhance user safety, motivation, and performance.**

## Key Points:

### 1. Technical Requirements:

- **Programming Language:** Python
- **Backend:** LLaMA3 AI model for real-time analysis and coaching.
- **Frontend:** Streamlit Web Framework for an intuitive user interface.
- **Database:** Minimal storage for user preferences; real-time computations via AI.
- **Wearable Integration:** Compatibility with fitness trackers for biometric data.

### 2. Functional Requirements:

- Provide real-time feedback on workout form and movements.
- Adapt fitness plans dynamically based on user performance and goals.
- Deliver personalized seasonal health and fitness tips.
- Support searches for eco-conscious fitness solutions (e.g., green gyms, sustainable gear).

## **2.Constraints & Challenges:**

- ☐ Ensuring real-time performance with low latency for feedback and adjustments.
- ☐ Handling diverse fitness data inputs, including wearable integration.
- ☐ Maintaining data privacy and secure handling of user biometrics and preferences.
- ☐ Optimizing the AI model for accuracy and responsiveness in dynamic fitness scenarios.

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## Phase-3: Project Design

### Objective:

To develop FitSync AI, a real-time fitness companion powered by LLaMA3, designed to provide adaptive coaching, personalized fitness plans, and instant feedback to enhance user safety, motivation, and performance during workouts.

### Key Points:

#### FitSync AI: Real-Time Fitness Adjustments with LLaMA3

##### 1. System Architecture:

- **User Interaction:** Users enter their fitness goals, preferences, or current activity details via the UI.
- **Data Processing:** Wearable devices send real-time biometric and motion data to the backend.
- **AI Analysis:** LLaMA3 processes the data to provide instant feedback, adjust workouts dynamically, and deliver coaching tips.
- **Results Display:** The frontend displays adaptive feedback, progress tracking, and personalized suggestions.

##### 2. User Flow:

- **Step 1:** User logs in and selects a workout goal (e.g., "Improve core strength").
- **Step 2:** Wearables sync biometric and motion data to the backend in real-time.
- **Step 3:** LLaMA3 processes the data, analyzing form, effort, and progress.
- **Step 4:** The app provides real-time feedback on the user's performance, adjusts the workout plan, and offers motivational tips.
- **Step 5:** User reviews progress and receives insights for the next session.

##### 3. UI/UX Considerations:

- **Minimalist Design:** Intuitive and clutter-free interface for easy navigation.
- **Real-Time Feedback Panel:** Displays live performance metrics and adjustments.
- **Customization Options:** Allows users to personalize goals, activity levels, and wearable device preferences.
- **Accessibility Features:** Includes dark/light modes, multilingual support, and voice commands for inclusivity.

This design ensures a smooth, responsive, and engaging fitness experience, tailored to individual user needs.

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

### Objective:

To deliver FitSync AI using agile methodologies, ensuring iterative development, continuous feedback, and timely delivery of a real-time fitness companion that adapts to user needs dynamically..

Sprint	Task	Priority	Duration	Deadline	Assigned To	Dependencies	Expected Outcome
Sprint 1	Environment Setup & AI Model Integration	🔴 High	6 hours (Day 1)	End of Day 1	E.Sathwik teja	LLaMA3 model, Python, Streamlit setup	AI model connected and environment operational
Sprint 1	Frontend UI Development	🟡 Medium	2 hours (Day 1)	End of Day 1	Shiva mote	Initial API response structure finalized	UI with input fields for fitness goals setup
Sprint 2	Real-Time Feedback Mechanism	🔴 High	3 hours (Day 2)	Mid-Day 2	Amarthya,pranay	AI model integration, wearable data	Feedback system for live motion tracking created
Sprint 2	Error Handling & Debugging	🔴 High	1.5 hours (Day 2)	Mid-Day 2	Sathwik teja,shiva	API logs, UI inputs	Stable system with reduced errors in feedback
Sprint 3	Testing & UI Enhancements	🟡 Medium	1.5 hours (Day 2)	Mid-Day 2	Rakesh	Feedback data, UI layout completed	Improved UI with responsiveness and usability
Sprint 3	Final Presentation & Deployment	🟢 Low	1 hour (Day 2)	End of Day 2	Entire Team	Fully functional prototype	Deployment-ready project for demonstration

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### Sprint Planning with Priorities

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

- **High Priority:** Set up environment and install dependencies.
- **High Priority:** Integrate LLaMA3 AI model.
- **Medium Priority:** Build a basic UI with input fields.

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

- **High Priority:** Implement real-time feedback mechanism.
- **High Priority:** Debug system errors and optimize response accuracy.

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

- **Medium Priority:** Test system responses, refine UI, and fix bugs.
- **Low Priority:** Prepare final demo and deploy the project.

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## Phase-5: Project Development

### Objective:

To develop FitSync AI, a real-time fitness companion powered by LLaMA3, providing users with adaptive coaching, personalized fitness plans, and instant feedback to enhance workout safety, performance, and motivation.

### Key Points:

#### 1. Technology Stack Used:

- **Frontend:** Streamlit
- **Backend:** LLaMA3 AI Model
- **Programming Language:** Python

#### 2. Development Process:

- **Step 1:** Implement API key authentication and integrate wearable data streams.
- **Step 2:** Develop real-time feedback logic using LLaMA3 for motion tracking and adaptive coaching.
- **Step 3:** Optimize AI processing for personalized fitness plans and performance insights.

#### 3. Challenges & Fixes:

- **Challenge:** High latency in feedback delivery.  
**Fix:** Optimize AI model inference and preprocess wearable data for faster response times.
- **Challenge:** Variability in wearable device data formats.  
**Fix:** Standardize data inputs through a preprocessing pipeline for consistent analysis.
- **Challenge:** Real-time UI responsiveness.  
**Fix:** Use lightweight Streamlit components and asynchronous data handling.

## Phase-6: Functional & Performance Testing

### Objective:

Ensure that the AutoSage App works as expected.

Here's a test case table similar to the one in the screenshot, but tailored for **FitSync AI: Real-Time Fitness Adjustments with LLaMA3**:

**Objective:**

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	Query "Create a custom fitness plan for weight loss."	A personalized fitness plan should be generated.	✅ Passed	Shanawaz
TC-002	Functional Testing	Real-time motion tracking during squats.	Accurate feedback on posture and repetitions is provided.	✅ Passed	Anwar
TC-003	Performance Testing	AI response time under 500ms.	The system should respond quickly to user inputs.	⚠️ Needs Optimization	Tester 3
TC-004	Bug Fixes & Improvements	Fixed incorrect data from wearable devices.	Data accuracy is improved for analysis.	✅ Fixed	Developer
TC-005	Final Validation	Ensure UI is responsive on desktop and mobile devices.	UI should work seamlessly on all devices.	❌ Failed – UI issues on mobile.	Tester 2
TC-006	Deployment Testing	Host the app using Streamlit Sharing.	App should be accessible online for users.	✅ Deployed	DevOps

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## Final Submission

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