**Project Title:**

FitSync AI: Real-Time Fitness Adjustments with LLaMA3

**Team Name:**

AI QUARTET

**Team Members:**

* Keerthana.B
* Sai Sharvani.M
* Karthik Singh.T
* Rishika.T

**Phase-1: Brainstorming & Ideation**

**Objective:**

Develop an AI-powered fitness assistant using LLaMA3 to provide real-time personalized workout adjustments, exercise recommendations, and recovery guidance.

**Key Points:**

**Problem Statement:**

* Many fitness enthusiasts struggle to stay motivated due to stagnant routines and lack of personalized guidance.
* Existing fitness apps lack real-time adaptability based on individual progress, fatigue levels, and performance.

**Proposed Solution:**

* FitSync AI leverages **LLaMA3** to analyze user workout data and provide **dynamic adjustments** to routines.
* The AI offers **exercise recommendations, intensity modifications, and recovery tips** based on real-time feedback.

**Target Users:**

* **Fitness enthusiasts** who need real-time adaptive workout programs.
* **Athletes** looking for AI-driven training insights and recovery optimization.
* **Beginners** who require guidance in structuring and modifying workouts.

**Expected Outcome:**

* A **fully functional AI-powered fitness assistant** that personalizes training and recovery guidance.

**Phase-2: Requirement Analysis**

**Objective:**

Define the technical and functional requirements for FitSync AI.

**Key Points:**

**Technical Requirements:**

* **Programming Language:** Python
* **Backend:** LLaMA3 API
* **Frontend:** Streamlit Web Framework
* **Database:** Firebase / Local JSON for user session storage

**Functional Requirements:**

* Users input **workout data (exercises, sets, reps, fatigue levels, etc.)**.
* AI suggests **real-time workout modifications** based on user feedback.
* AI provides **recovery and nutrition suggestions** based on exercise intensity.
* UI displays **progress analytics, workout history, and recommended changes**.

**Constraints & Challenges:**

* **Ensuring AI-generated workout modifications are effective and personalized.**
* **Handling real-time user data processing efficiently.**
* **Creating an intuitive UI that fitness enthusiasts can easily navigate.**

**Phase-3: Project Design**

**Objective:**

Develop the architecture and user flow of FitSync AI.

**Key Points:**

**System Architecture:**

1. **User enters workout data** via UI.
2. **LLaMA3 AI processes the input** and suggests adjustments.
3. **AI provides real-time feedback** on intensity, volume, and recovery.
4. **Updated workout plan and insight s** are displayed in the UI.

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| **Sprint** | **Task** | **Priority** | **Duration** | **Deadline** | **Assigned To** | **Dependencies** | **Expected Outcome** |
| Sprint 1 | Environment Setup & AI API Integration | 🔴 High | 6 hours | End of Day 1 | **Keerthana.B** | LLaMA3 API Key, Python, Streamlit setup | AI connection established & working |
| Sprint 1 | Basic Frontend UI Development | 🟡 Medium | 2 hours | End of Day 1 | **Sai Sharvani.M** | API response format finalized | Input fields for workout data |
| Sprint 2 | Workout Data Processing & AI Logic | 🔴 High | 3 hours | Mid-Day 2 | **Karthik Singh.T** | API response, UI elements ready | AI-generated workout suggestions |
| Sprint 2 | Error Handling & Debugging | 🔴 High | 1.5 hours | Mid-Day 2 | **Rishika.T** | AI processing logs, UI inputs | Improved AI stability |
| Sprint 3 | Testing & UI Enhancements | 🟡 Medium | 1.5 hours | Mid-Day 2 | **Keerthana.B** | AI response, UI layout completed | Responsive UI, better user experience |
| Sprint 3 | Final Presentation & Deployment | 🟢 Low | 1 hour | End of Day 2 | **Entire Team** | Working prototype | Demo-ready project |

**User Flow:**

* **Step 1:** User logs workout session (exercise type, reps, sets, difficulty).
* **Step 2:** AI analyzes the input and suggests modifications.
* **Step 3:** User receives **adjusted workout recommendations** or recovery tips.
* **Step 4:** Workout summary and progress tracking are updated.

**UI/UX Considerations:**

* **Simple & user-friendly interface** with a focus on usability.
* **Dashboard with progress visualization** (charts & performance indicators).
* **Adaptive interface** for mobile and desktop users.

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

**Objective:**

Break down development tasks for efficient completion.

**Phase-5: Project Development**

**Objective:**

Implement core features of FitSync AI.

**Technology Stack Used:**

* **Frontend:** Streamlit
* **Backend:** LLaMA3 API
* **Programming Language:** Python
* **Database:** Firebase / Local Storage (for session-based user tracking)

**Development Process:**

1. **Implement API key authentication and LLaMA3 integration.**
2. **Develop workout adjustment algorithms** (based on fatigue, intensity, progress).
3. **Optimize UI for performance tracking and insights.**

**Challenges & Fixes:**

* **Challenge:** Delayed AI response times.
  + **Fix:** Implement caching for frequently used workout modifications.
* **Challenge:** Difficulty in understanding AI-generated recommendations.
  + **Fix:** Provide easy-to-read explanations for workout changes.

**Phase-6: Functional & Performance Testing**

**Objective:**

Ensure that FitSync AI works as expected.

| **Test Case ID** | **Category** | **Test Scenario** | **Expected Outcome** | **Status** | **Tester** |
| --- | --- | --- | --- | --- | --- |
| TC-001 | Functional Testing | User inputs workout data (e.g., Bench Press - 3x10) | AI suggests adjusted reps/sets based on fatigue | ✅ Passed | **Keerthana.B** |
| TC-002 | Functional Testing | User requests a recovery suggestion | AI provides a rest period and hydration reminder | ✅ Passed | **Sai Sharvani.M** |
| TC-003 | Performance Testing | API response time under 500ms | AI should return results quickly | ⚠ Needs Optimization | **Karthik Singh.T** |
| TC-004 | Bug Fixes & Improvements | Fixed incorrect AI recommendations | AI-generated workouts should be more relevant | ✅ Fixed | **Developer** |
| TC-005 | Final Validation | Ensure UI is responsive across devices | UI should work on mobile & desktop | ❌ Failed - UI broken on mobile | **Rishika.T** |
| TC-006 | Deployment Testing | Host the app using Streamlit Sharing | App should be accessible online | 🚀 Deployed | **DevOps** |

**Final Submission Requirements**

* **Project Report:** Based on this template.
* **Demo Video:** 3-5 minutes walkthrough.
* **GitHub/Code Repository Link:** Well-documented source code.
* **Presentation Deck:** Highlighting problem, solution, and demo.