

Assignment 3

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Topic: To identify System Scope, Actors, Use Cases, Use Case structuring for a given problem and perform Use Case narration in template form with normal/alternate flows.

1. System Scope

In Scope:

- User Registration & Login
- AI-powered Personalized Workout Plans
- Food Logging & Calorie/Macros Tracking
- Water Reminder & Hydration Tracker
- Sleep & Step Tracking (via Google Fit/Apple Health)
- Workout Videos & Live Sessions with Trainers
- Meditation & Mental Wellness Section
- Community Challenges & Leaderboards
- Maharashtrian Diet Plans & Nutrition Tips

Out of Scope:

- Offline gym training services
- Payment gateway for trainers (future scope)
- Integration with all fitness devices beyond Google Fit/Apple Health

2. Actors

- **Primary Actors:**
 - **User (Customer):** Registers, logs workouts, tracks diet/sleep/water, watches videos.
 - **Trainer:** Uploads workout plans, conducts live sessions.
 - **Admin:** Manages users, trainers, and platform content.
- **Secondary Actors:**

- **Health API (Google Fit/Apple Health):** Provides step and sleep data.
- **Notification Service:** Sends water & workout reminders.

3. Use Cases

1. Register / Login
2. View AI-Personalized Workout Plan
3. Log Food & Track Calories
4. Track Water Intake (with reminders)
5. Track Sleep Patterns
6. Track Steps & Daily Activity
7. Watch Workout Videos / Live Sessions
8. Meditation & Mental Wellness Exercises
9. Participate in Community Challenges
10. View Maharashtrian Diet Plans
11. Manage Profile
12. Admin Manages Trainers, Users & Content

4. Use Case Structuring

- **Includes:**
 - *Login* → **includes** *Validate Credentials*
 - *Workout Plan* → **includes** *AI Recommendation Engine*
 - *Log Food* → **includes** *Update Calorie Count*
- **Extends:**
 - *Track Nutrition* → **extends** *Generate Weekly Report*
 - *Meditation Section* → **extends** *Mental Wellness*
 - *Community Challenges* → **extends** *User Profile*

5. Use Case Narrations

Use Case 1: Register / Login

- **Actors:** User, System
- **Precondition:** User has internet access.

- **Postcondition:** User enters dashboard successfully.
- **Normal Flow:**
 1. User clicks Register/Login.
 2. System prompts for email & password.
 3. User enters valid credentials.
 4. System authenticates and grants access.
- **Alternate Flow:**
 - Wrong password → error message, retry 3 times.
 - Unregistered user → redirect to registration page.

Use Case 2: View AI-Personalized Workout Plan

- **Actors:** User, AI Engine, Trainer
- **Precondition:** User is logged in and profile (age, weight, goal) is set.
- **Postcondition:** Personalized workout plan displayed.
- **Normal Flow:**
 1. User selects “Workout Plan”.
 2. System fetches profile details.
 3. AI engine generates daily/weekly exercises.
 4. User views schedule & exercises.
- **Alternate Flow:**
 - If AI fails → fallback to trainer’s standard workout plan.

Use Case 3: Log Food & Track Calories

- **Actors:** User, System
- **Precondition:** User is logged in.
- **Postcondition:** Daily calorie/macros updated.
- **Normal Flow:**
 1. User selects “Nutrition Tracker”.
 2. User enters food item.
 3. System calculates calories/macros.
 4. System updates daily log.

- **Alternate Flow:**
 - Food not in database → manual entry option.

Use Case 4: Track Water Intake

- **Actors:** User, Notification Service
- **Precondition:** User logged in.
- **Postcondition:** Water intake progress updated.
- **Normal Flow:**
 1. User sets daily water intake goal.
 2. System sends reminders periodically.
 3. User logs intake.
 4. System updates hydration tracker.
- **Alternate Flow:**
 - If reminders fail → show in-app notification only.

Use Case 5: Participate in Community Challenges

- **Actors:** User, System
 - **Precondition:** User is logged in.
 - **Postcondition:** User joins and progress tracked.
 - **Normal Flow:**
 1. User navigates to “Community Challenges”.
 2. System shows active challenges.
 3. User selects and joins.
 4. System tracks daily progress.
 5. Leaderboard updates automatically.
 - **Alternate Flow:**
 - If challenge expired → display “Challenge Closed”.
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6. UML Use Case Diagram

