GYM WORKOUT SCHEDULE CHAT-BOT (COACHBOT)

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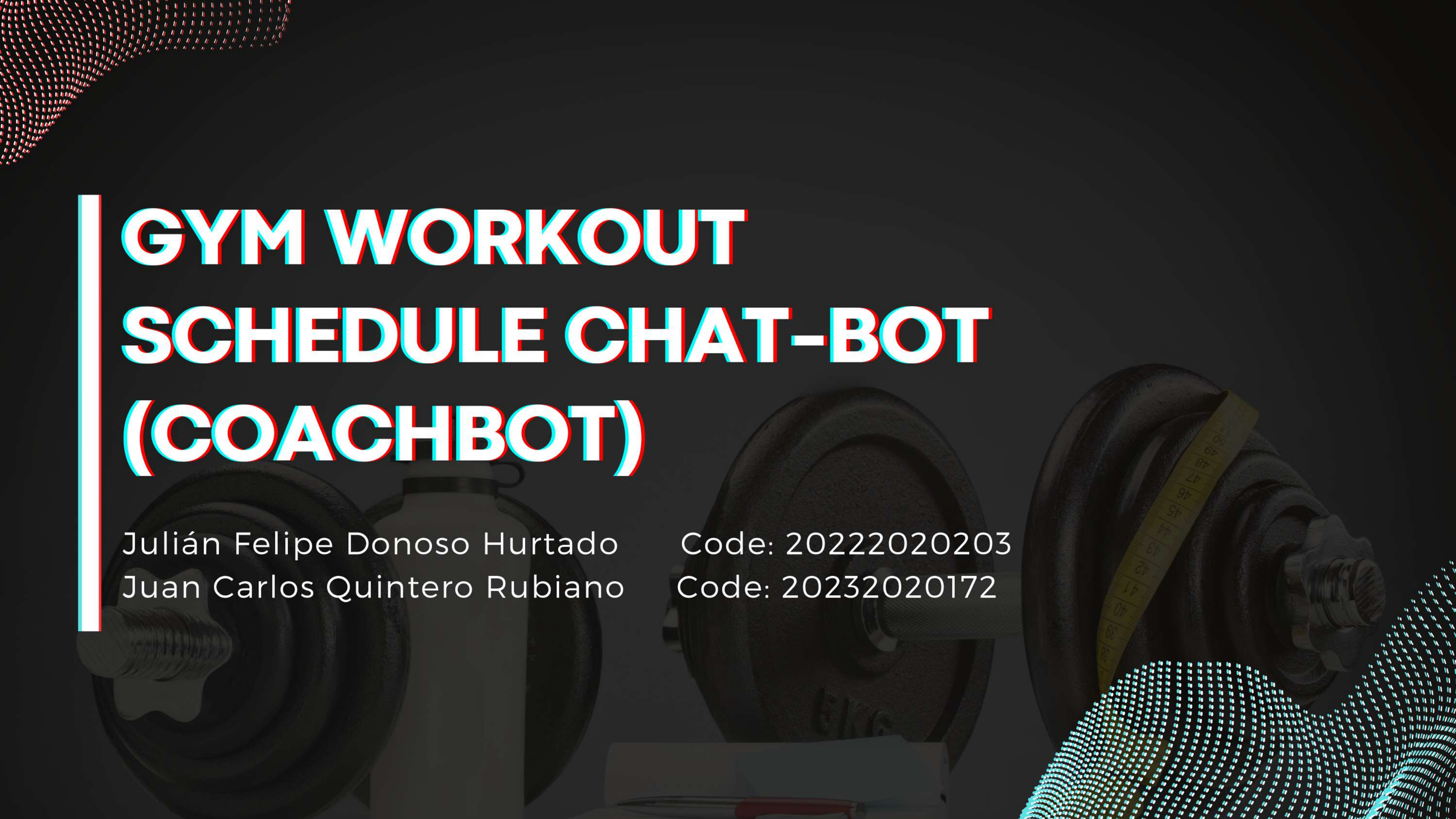


GENERAL SYSTEM REPRESENTATION

- **System Objective:**

Generate personalized workout routines based on the user's needs and preferences

- **Phase 1: User Data Input:**

Collection of data such as fitness level, goals, available equipment, duration, preferences, and other necessary information for generating modifications.

- **Phase 2: Routine Generation Algorithm:**

The algorithm combines user data and searches for possible exercises that match the user's preferences to generate the routine.

- **Phase 3: Exercise Recommendations:**

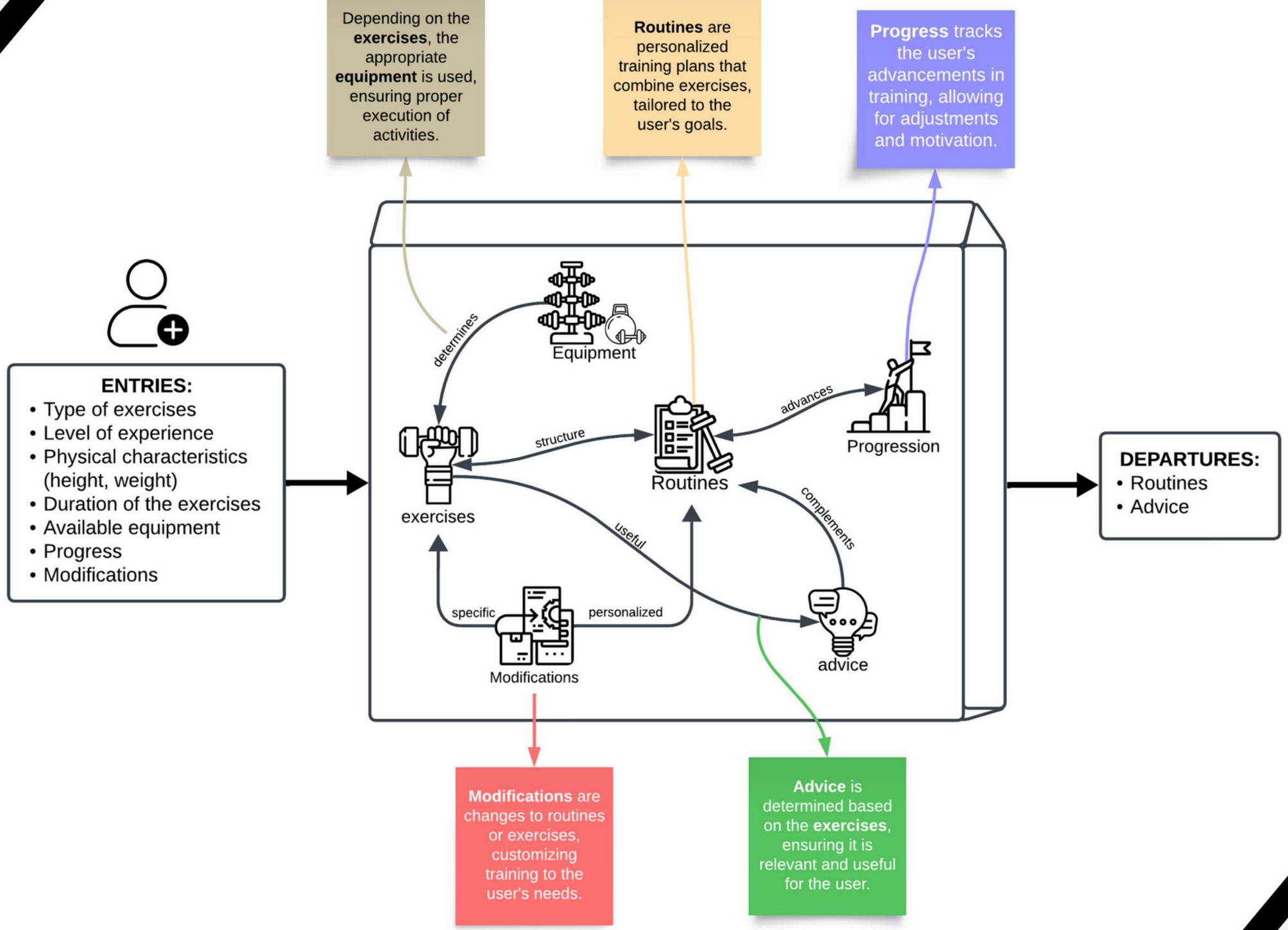
Detailed proposals for exercises, repetitions, sets, and rest times.

- **Phase 4: Adaptation and Feedback:**

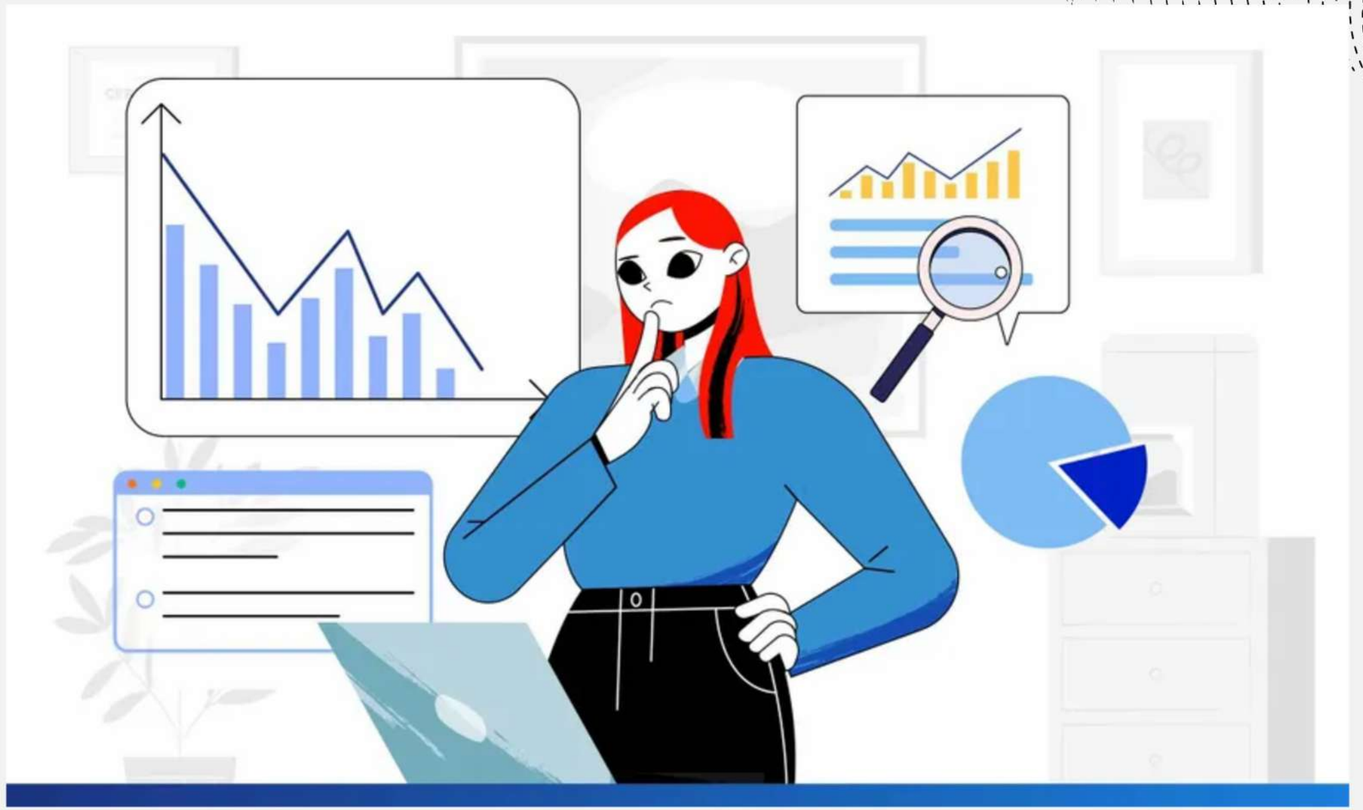
Adjustments based on user progress and feedback.

- **Current System Limitations:**

Recommendations for users with health conditions are still under development.
Aiming for a higher level of fluency in conversations.
No nutritional recommendations can be made (it would be irresponsible to do so).


Depending on the **exercises**, the appropriate **equipment** is used, ensuring proper execution of activities.
Routines are personalized training plans that combine exercises, tailored to the user's goals.
Progress tracks the user's advancements in training, allowing for adjustments and motivation.
ENTRIES:
• Type of exercises
• Level of experience
• Physical characteristics (height, weight)
• Duration of the exercises
• Available equipment
• Progress
• Modifications
determines
Equipment
structure
exercises
Routines
advances
Progression
useful
complements
specific
personalized
Modifications
advice
DEPARTURES:
• Routines
• Advice
Modifications are changes to routines or exercises, customizing training to the user's needs.
Advice is determined based on the **exercises**, ensuring it is relevant and useful for the user.

SYSTEM SENSITIVITY ANALYSIS



Phase 1: Key Variables

Key Inputs: User data (goals, available equipment, experience level, duration, preferences, and modifications).

Impact: With the alteration of any of this data, a large part of the system's elements are affected, making the system highly sensitive.

PHASE 2: KEY CONCEPTS IN THE ANALYSIS

Domino Effect:

The domino effect within the chatbot system occurs when a small error in one of the user's inputs triggers a chain of errors in the final recommendations.

Error example:

- Modifications affect exercises and routines.
- If the routine fails, progression is compromised.
- Exercises affect the routine and recommendations.

Butterfly Effect:

The butterfly effect within the system manifests when small errors or insignificant changes in user data generate unexpected long-term results.

Error example:

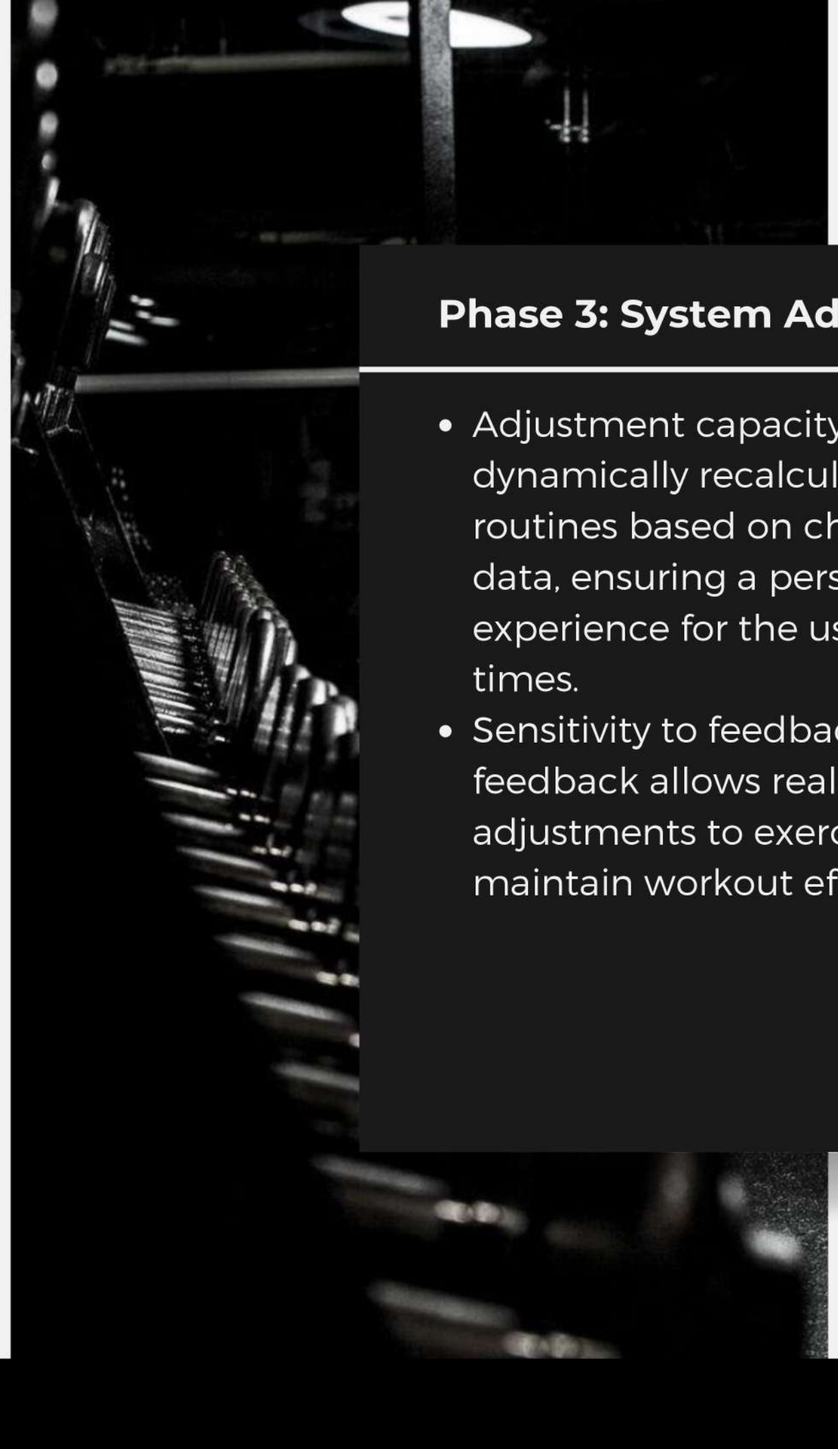
- A modification could affect progression but not the entire system.

Snowball Effect:

The snowball effect in the system occurs when small problems or errors accumulate over time, causing a larger impact that becomes more difficult to correct.

Error example:

- If equipment fails, it disrupts the exercises, causing the entire system to collapse.

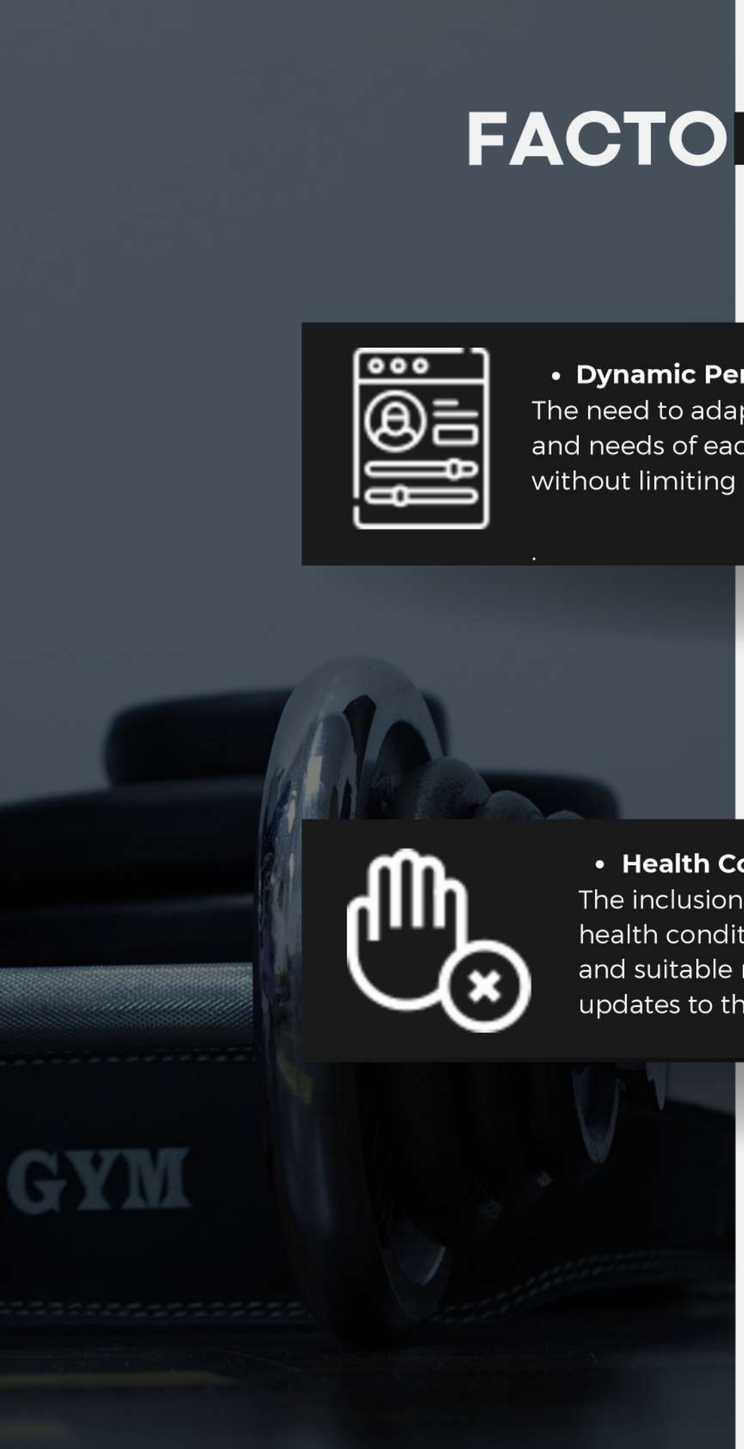


Phase 3: System Adaptability

- Adjustment capacity: The system dynamically recalculates routines based on changes in data, ensuring a personalized experience for the user at all times.
- Sensitivity to feedback: User feedback allows real-time adjustments to exercises to maintain workout effectiveness.

Limitations

- Sensitivity to incomplete or inaccurate data: The system may be vulnerable if user data is inaccurate or incomplete.
- Suboptimal responses to sudden changes: Extreme or unexpected changes in fitness level or available equipment can limit the system's ability to respond effectively.
- Health issue constraints



FACTORS CONTRIBUTING TO COMPLEXITY:

- **Dynamic Personalization:**

The need to adapt routines to the individual preferences and needs of each user adds a level of complexity, without limiting possible modifications.

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- **Interaction of Multiple Elements:**

Each element can influence others, creating a web of relationships.

- **Health Conditions and Limitations:**

The inclusion of recommendations for users with health conditions adds complexity, as ensuring safe and suitable routines for everyone requires constant updates to the system.

- **User Evolution:**

As users progress in their routines and their needs and goals may change, the system must be flexible enough to adapt to these variations without losing coherence.

EMERGENT BEHAVIORS

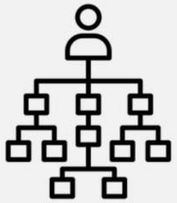
Factors Contributing to Emergent Behaviors

- **Continuous Adaptation:**

The system learns and adapts over time through feedback, resulting in changes to routines or recommendations.

- **User-System Interaction:**

Users may utilize the chatbot in ways that developers did not anticipate, creating new dynamics.



- **Interactions Between Elements:**

The interconnection among the various components of the system (routines, equipment, progress, etc.) can lead to unforeseen outcomes.

IMPLICATIONS

Unexpected Personalization:

Emergent behaviors allow for a deeper level of personalization, but they can also create challenges in maintaining consistency in recommendations.

Risks of Inefficient Use:

If emergent behaviors are not monitored, users might follow less effective or potentially harmful routines in the long run.

Continuous Improvement of the System:

Observing these behaviors enables adjustments to the chatbot's algorithm to enhance the user experience, optimizing personalization and the accuracy of recommendations.