AI and Data Requirements

The AI features in CoreFoods are a core part of the experience, as they help users understand their data and turn it into useful advice. To support this, we need to clearly define what information the AI will use, what it should produce and how that data will be handled safely.

AI Requirements

The main AI components in the app will be:

- An AI chatbot that users can talk to about their fitness and nutrition.
- AI-generated suggestions for habits, meal ideas, and exercise routines, based on the user's inputs and goals.

For this to work, the AI will need:

- Access to a summary of the user's current profile (for example: age range, gender, height, weight, activity level and selected goal like "lose weight", "maintain" or "gain muscle").
- Access to recent exercise logs (types of exercise, duration, estimated calories burned).
- Access to recent food logs (meals entered, estimated calories and possibly basic macros like carbs, protein and fat if available).
- Access to calculated metrics, such as daily calorie deficit/surplus and progress trends over time.

The AI will not need to see sensitive identifiers such as passwords. Where possible, only anonymised or minimal data will be sent to the AI (e.g. "User is 21–30 years old, 170–180cm, aiming to lose weight" instead of exact values). The chatbot's job is to respond with:

- Plain language explanations (e.g. "You are roughly in a 300 calorie deficit today").
- Simple habit suggestions (e.g. "Try adding one extra glass of water per day").
- Meal and exercise ideas consistent with the user's stated preferences and goals.

The responses from the AI must be informational only and not medical advice. The app will also include messaging to remind users that the AI is there to support healthy habits, not to replace professional guidance.

Data Requirements

To support both the tracking features and the AI elements, the app will store and process the following categories of data:

- User Profile Data
    - Basic information: name, email, password (stored securely), chosen display name.
    - Fitness-related details: height, weight, age range, gender, target goal (e.g. lose weight, maintain, gain), and activity level.

- Exercise Data
    - Type of exercise (e.g. walking, running, weight training).
    - Duration and intensity (user input).
    - Date and time of activity.
    - Calculated calories burned (using internal formulas).

- Food and Nutrition Data
    - Meal entries (e.g. breakfast, lunch, dinner, snacks).
    - Estimated calories for each entry (user input or basic look-up).
    - Date and time for each logged meal.
    - Daily calorie totals and calculated deficit/surplus.

- Progress and Analytics Data
    - Historical logs used for graphs and dashboards (e.g. daily calories vs target, weekly exercise totals).
    - Trend information (e.g. “3-day streak of hitting calorie target”).

- AI Interaction Data
    - Basic record of questions asked to the chatbot and the responses given (for improving user experience and debugging).
    - These logs will avoid storing unnecessary personal details and can be anonymised if required.

All of this data will be stored in a local SQLite database on the device, with sensitive elements (such as passwords) handled securely. Where online services like Firebase are used (for example, for authentication or notifications), the data sent to those services will be kept to the minimum needed.

The data must be:

- Accurate, so the calculations for calories and progress are meaningful.
- Consistent, so the AI and the trackers always read from the same source of truth.
- Protected, with proper handling of login credentials and private information.

These requirements ensure that the AI has enough information to be useful, while still respecting user privacy and keeping the system manageable for the scope of this project.