NourScore:

1. **Overall Nutritional Score:**

• A composite score representing the user’s progress across all key nutritional metrics.

• Calculated using a weighted average of individual metrics.

• Displayed in the central gauge.

• Takes into account the user’s daily activity, recovery state, and personalized health goals.

2. **Dynamic Individual Metrics:**

• **Calories:**

• Intake vs. daily goal + Whoop calorie burn.

• Adjustments based on the user’s strain and recovery metrics. Higher strain days increase the daily goal.

• **Protein:**

• Intake vs. daily goal.

• Adjustments based on workout intensity and type. Strength training increases protein requirements more than cardio.

• Incorporate strain metrics to adjust protein needs dynamically.

• **Fats:**

• Intake vs. daily goal.

• Adjustments based on workout intensity and type. Longer endurance activities increase fat requirements.

• Use strain and recovery data to adjust fat intake recommendations.

• **Carbs:**

• Intake vs. daily goal.

• Adjustments based on workout intensity and type. High-intensity cardio increases carb needs.

• Consider strain metrics and recovery status to adjust carb intake dynamically.

• **Hydration:**

• Fluid intake vs. daily goal.

• Adjustments based on activity level, temperature, and sleep quality.

• Use recovery metrics (HRV, resting heart rate) to adjust hydration needs, ensuring proper recovery and performance.

3. **Additional Metrics:**

• **Micronutrients:**

• Key vitamins and minerals intake vs. daily goal.

• Dynamic adjustments based on dietary intake and recovery needs.

• **Recovery:**

• Data from Whoop recovery metrics (HRV, resting heart rate, sleep performance).

• Provide insights and recommendations based on recovery trends.

• **Strain:**

• Data from Whoop strain metrics (strain score, average heart rate, max heart rate).

• Use this data to dynamically adjust nutritional recommendations and daily goals.

**Dynamic Adjustments Based on User Data**

1. **Calories:**

• Use the formula: Total Caloric Need = Basal Metabolic Rate (BMR) + Activity Level Adjustments + Whoop Calorie Burn

• BMR can be calculated using standard equations (Harris-Benedict, Mifflin-St Jeor) and adjusted for age, gender, weight, and height.

• Activity Level Adjustments: Use Whoop strain metrics to adjust based on daily activity.

2. **Protein:**

• Adjust based on the type and intensity of workouts.

• For strength training: Increase protein intake recommendations to support muscle repair and growth.

• For cardio: Moderate increase to support muscle recovery and endurance.

3. **Fats:**

• Adjust based on the type and intensity of workouts.

• For endurance activities: Increase fat intake to support longer-duration energy needs.

4. **Carbs:**

• Adjust based on the type and intensity of workouts.

• For high-intensity cardio: Increase carb intake to replenish glycogen stores.

5. **Hydration:**

• Adjust based on activity level, temperature, and sleep quality.

• Use external data sources for current temperature at the user’s location.

• Monitor sleep quality to adjust hydration needs for optimal recovery.

**Example Calculations**

• **Caloric Needs:**

• BMR = 10 \* weight(kg) + 6.25 \* height(cm) - 5 \* age + 5 (for males) / -161 (for females)

• Activity Level Adjustments = Whoop strain metrics (e.g., multiply BMR by activity factor based on strain score)

• Total Caloric Need = BMR + Activity Level Adjustments + Whoop Calorie Burn

• **Protein Needs:**

• Base recommendation: 1.2 to 2.0 grams per kg of body weight.

• Increase by 10-20% for strength training days.

• **Fats Needs:**

• Base recommendation: 20-35% of total caloric intake.

• Increase by 10-15% for endurance activities.

• **Carbs Needs:**

• Base recommendation: 3-7 grams per kg of body weight.

• Increase by 20-30% for high-intensity cardio days.

**Implementation Plan**

1. **Data Aggregation:**

• Collect and store Whoop data (strain, recovery, sleep) and meal data in a centralized database.

• Integrate external APIs for temperature and other environmental factors.

2. **Dynamic Calculation Engine:**

• Implement a service to calculate BMR, adjust for activity level, and incorporate Whoop metrics.

• Develop algorithms to dynamically adjust protein, fat, carb, and hydration goals based on user activity and recovery metrics.

3. **User Interface:**

• Design a visually engaging central gauge for the Overall Nutritional Score.

• Display individual metrics with dynamic adjustments in real-time.

• Provide insights and recommendations based on the calculated data.

4. **Real-Time Updates:**

• Implement WebSocket or similar technology to push updates to the user interface in real-time.

• Ensure data synchronization between the backend and frontend.