Goal: To select the most suitable training program for the user from a predefined list by scoring each program against the user's assessed profile.

1. User Assessment & Derived Characteristics:

First, the system processes the user's assessment answers to determine these key characteristics:

* experienceLevel: (e.g., "Complete Beginner", "HYROX Novice", "Advanced")
* trainingBackground: (e.g., "General Fitness", "Running/Endurance", "Strength/CrossFit")
* timeAvailability: (e.g., "Limited", "Moderate", "Substantial")
* specialCategory: (e.g., "Standard", "Masters 40-49", "Doubles Competitor", "Injury Rehabilitation")
* fitnessProfile: (Detailed scores for running, strength, etc.; currently, the impact of this is simplified in the weighting)

2. Program "Fit Scores" - How Each Program is Judged Against the User:

The system compares the user's characteristics to a predefined set of ideal traits for each available program (Beginner, Intermediate, Advanced, Runner, Strength, Doubles). This results in specific "fit scores" (typically 0.0 to 1.0, where 1.0 is a perfect match for that criterion).

Here are the detailed criteria from your HYROX\_PROGRAMS constant:

* A. Experience Level Fit Score (expFitScore)  
  + Beginner Program:
    - Complete Beginner: 1.0
    - Fitness Enthusiast: 0.8
    - HYROX Novice: 0.4
    - Intermediate: 0.2
    - Advanced: 0.0
    - Elite: 0.0
  + Intermediate Program:
    - Complete Beginner: 0.2
    - Fitness Enthusiast: 0.5
    - HYROX Novice: 1.0
    - Intermediate: 1.0
    - Advanced: 0.6
    - Elite: 0.3
  + Advanced Program:
    - Complete Beginner: 0.0
    - Fitness Enthusiast: 0.1
    - HYROX Novice: 0.4
    - Intermediate: 0.7
    - Advanced: 1.0
    - Elite: 1.0
  + Runner Program:
    - Complete Beginner: 0.3
    - Fitness Enthusiast: 0.8
    - HYROX Novice: 0.8
    - Intermediate: 0.8
    - Advanced: 0.3
    - Elite: 0.2
  + Strength Program:
    - Complete Beginner: 0.3
    - Fitness Enthusiast: 0.5
    - HYROX Novice: 0.8
    - Intermediate: 0.8
    - Advanced: 0.5
    - Elite: 0.2
  + Doubles Program:
    - Complete Beginner: 0.1
    - Fitness Enthusiast: 0.4
    - HYROX Novice: 0.8
    - Intermediate: 1.0
    - Advanced: 1.0
    - Elite: 0.8
* B. Training Background Fit Score (bgFitScore)  
  + Beginner Program:
    - General Fitness: 0.9
    - Running/Endurance: 0.7
    - Strength/CrossFit: 0.7
    - Team Sports: 0.8
    - No Significant Background: 1.0
  + Intermediate Program:
    - General Fitness: 0.5
    - Running/Endurance: 0.8
    - Strength/CrossFit: 0.8
    - Team Sports: 0.6
    - No Significant Background: 0.2
  + Advanced Program:
    - General Fitness: 0.3
    - Running/Endurance: 0.7
    - Strength/CrossFit: 1.0
    - Team Sports: 0.5
    - No Significant Background: 0.1
  + Runner Program:
    - General Fitness: 0.6
    - Running/Endurance: 0.3 ("Improve your Running Program" might imply they *are* runners, but the fit score here is for those *needing* running focus, so if their background *is* running, it's less of a "fit" for a program *to improve* running, perhaps? This logic might need review in the constant itself). The current description says "improve your running capacity and speed whilst training for Hyrox."
    - Strength/CrossFit: 0.8
    - Team Sports: 0.4
    - No Significant Background: 0.8
  + Strength Program:
    - General Fitness: 0.7
    - Running/Endurance: 0.9
    - Strength/CrossFit: 0.3
    - Team Sports: 0.6
    - No Significant Background: 0.6
  + Doubles Program:
    - General Fitness: 0.7
    - Running/Endurance: 0.8
    - Strength/CrossFit: 0.8
    - Team Sports: 1.0
    - No Significant Background: 0.1
* C. Time Availability Fit Score (timeFitScore)  
  + Beginner Program:
    - Very Limited: 0.6
    - Limited: 0.7
    - Moderate: 0.9
    - Substantial: 0.8
    - Extensive: 0.6
  + Intermediate Program:
    - Very Limited: 0.2
    - Limited: 0.5
    - Moderate: 0.8
    - Substantial: 1.0
    - Extensive: 0.9
  + Advanced Program:
    - Very Limited: 0.1
    - Limited: 0.3
    - Moderate: 0.7
    - Substantial: 0.9
    - Extensive: 1.0
  + Runner Program:
    - Very Limited: 0.7
    - Limited: 0.8
    - Moderate: 1.0
    - Substantial: 0.9
    - Extensive: 0.8
  + Strength Program:
    - Very Limited: 0.7
    - Limited: 0.8
    - Moderate: 1.0
    - Substantial: 0.9
    - Extensive: 0.8
  + Doubles Program:
    - Very Limited: 0.2
    - Limited: 0.5
    - Moderate: 0.8
    - Substantial: 1.0
    - Extensive: 0.9
* D. Special Category Fit Score (catFitScore)  
  + Beginner Program:
    - Standard: 1.0
    - Masters 40-49: 0.9
    - Masters 50+: 0.8
    - Doubles Competitor: 0.7
    - Relay Team: 0.5
    - Injury Rehabilitation: 0.8
    - Off-Season: 0.3
  + Intermediate Program:
    - Standard: 1.0
    - Masters 40-49: 1.0
    - Masters 50+: 0.9
    - Doubles Competitor: 0.8
    - Relay Team: 0.6
    - Injury Rehabilitation: 0.5
    - Off-Season: 0.7
  + Advanced Program:
    - Standard: 1.0
    - Masters 40-49: 0.8
    - Masters 50+: 0.7
    - Doubles Competitor: 1.0
    - Relay Team: 0.8
    - Injury Rehabilitation: 0.3
    - Off-Season: 0.9
  + Runner Program:
    - Standard: 0.8
    - Masters 40-49: 0.8
    - Masters 50+: 0.5
    - Doubles Competitor: 0.5
    - Relay Team: 0.5
    - Injury Rehabilitation: 0.3
    - Off-Season: 0.4
  + Strength Program:
    - Standard: 0.8
    - Masters 40-49: 0.6
    - Masters 50+: 0.4
    - Doubles Competitor: 0.5
    - Relay Team: 0.5
    - Injury Rehabilitation: 0.5
    - Off-Season: 0.5
  + Doubles Program:
    - Standard: 0.5
    - Masters 40-49: 0.5
    - Masters 50+: 0.4
    - Doubles Competitor: 1.0
    - Relay Team: 1.0
    - Injury Rehabilitation: 0.2
    - Off-Season: 0.6
* E. Fitness Profile Fit Score (profileFitScore)  
  + This score is determined by the calculateFitnessProfileFit function.
  + Currently, this function is a placeholder and returns a fixed score of 0.8 for all programs.
  + Ideally, this would involve more detailed logic matching the program's focus (e.g., strength, running) with the user's specific fitness test results from assessFitnessProfile.

3. Weighting and Final Score Calculation:

Each of the above fit scores (A-E) is multiplied by a specific weight, and these are summed up to get a "Total Score" for each program, for that user:

* expFitScore (Experience) \* 0.35 (35%)
* bgFitScore (Background) \* 0.25 (25%)
* timeFitScore (Time Availability) \* 0.20 (20%)
* catFitScore (Special Category) \* 0.10 (10%)
* profileFitScore (Detailed Fitness Profile) \* 0.10 (10%)

4. Program Recommendation:

The program that receives the highest "Total Score" after this weighted calculation is the one recommended to the user. If all scores are very low or no program can be decisively chosen, it defaults to the "IntermediateProgram".