RESEARCH
DOCUMENT

Rome was Built
in a Day

TrainWise
GOOD X SOFTWARE

Vansh Sood (u23534402)

Denis Woolley (u23528860)

Jared Hürlimann (u23543932)

Jason Mayo (u23587572)

Amadeus Fidos (u22526162)

1. Member Journey & Class Booking

1. **Discover & Schedule**

   o **Browse classes**: On the mobile app, members see a calendar or list view of upcoming classes (e.g., "Mon 6 AM Strength," "Tue 5 PM WOD," "Thu 7 AM Endurance").

   o **View details**: Tap into a class to see date/time, coach name, capacity, workout description, required equipment, and remaining spots or credits.

   o **Book or cancel**: Members hit "Book" (if they have credits or an active package) or "Cancel" within the allowed window (e.g., up to 2 hours before). The API enforces pay-first and capacity rules, updates their remaining credits, and triggers confirmation notifications.

2. **Pre-Class Reminders & Check-In**

   o Automated SMS/email push 1 hour before.

   o On-site QR-code or "Check In" button in the app when they arrive: marks attendance in your database and prevents no-shows.

2. What Happens in Class

A standard 60-minute HIIT/CrossFit session typically breaks down into:

Segment	Purpose
Warm-up	5–10 min of dynamic stretches, joint prep, light movements
Skill/Strength	10–15 min focused on technique or loading (e.g., back squat, deadlift, rope climbs)
WOD (Workout of the Day)	15–25 min high-intensity workout (formats detailed below)
Cool-Down	5 min of stretching, breathing drills, mobility

During class, the coach

   o guides the Warm-up, Skill and Cool-Down.
   o demo movements,
   o correct form,
   o scale workouts (lighter loads, alternative exercises),
   o manages the session on the app

The app provides the interface for the session each user to record their scores (reps/time etc.) which is managed by the coach as well.

3. Workout Formats to Support

The system lets coaches define workouts in these common formats:

1. **For Time**
   Complete a set amount of work (e.g., "21-15-9 Thrusters and Pull-Ups") as fast as possible.

2. **AMRAP** (As Many Rounds/Reps As Possible)
   Repeat a circuit ("AMRAP 12 min: 10 Push-Ups, 15 Air Squats, 200 m Run") until time expires.

3. **EMOM** (Every Minute on the Minute)
   Perform a prescribed movement at the top of each minute (e.g., "EMOM 10 min: 12 calorie row").

4. **Chipper**
   A long list of varied movements done once in sequence (e.g., 50 Wall-Balls, 40 Kettlebell Swings, …).

5. **Interval**
   Alternating work/rest blocks (e.g., "8 rounds: 30 sec Max Burpees / 30 sec Rest").

Coaches enter these in free-text or structured fields (type, time cap, movements, loads, reps). Later can evolve toward a template library of common WODs.

4. Live Leaderboards & Scoring

- **Score Submission**
  At class end or during class (depending on WOD), members enter their score (time, total reps, rounds + reps) into the mobile app. Coaches can also input or adjust scores.

- **Real-Time Ranking**
  As scores come in, the backend sorts members by fastest time, highest reps, etc., and pushes updated standings via WebSocket to every phone and -optionally- a gym-floor display (could be the coaches phone connected to the screen).

- **Privacy Controls**
  Members can opt out of public leaderboards; the system tracks a "public" flag per score.

- **Historical Tracking**
  Store every WOD's leaderboard so you can show trends ("You improved your Sprint time by 20 sec since last month").

5. Coach Responsibilities & How the Software Helps

Phase	Coach Activity	Software Support
Preparation	Create/edit the weekly class schedule	Web UI schedule editor, recurring-template tool
Workout Design	Define each class's WOD format, movements, loads	Workout form with structured fields & media upload
In-Class	Demonstrate movements, correct form, start/stop clock	Real-time class clock, rep-counter sync via WebSocket
Post-Class	Collect scores, review scaling choices, give feedback	Score submission UI, coach override dashboard
Follow-Up	Message members, highlight top performers, announce PRs	Bulk messaging (SMS/email), push achievement badges

1. "For Time" Workouts

What it means:

You give members a specific list of exercises (for example: "21 Thrusters, 15 Pull-Ups, 9 Thrusters, 15 Pull-Ups, 21 Thrusters") and they complete everything as fast as they can. The goal is simply to finish the prescribed work in the shortest possible time.

What you measure:

- **Elapsed Time:** When they start the first rep, a clock begins. When they finish the last rep, it stops.
- **Units:** Store this as total seconds (e.g. 312 seconds for 5 minutes 12 seconds).

How to rank them:

- Lower times are *better*, so you sort participants from smallest time to largest.

Software flow:

1. Member taps "Start" in the class app → record start_time.
2. Member taps "Finish" → record end_time.
3. Compute time_seconds = end_time - start_time.
4. Write time_seconds into the database.
5. Leaderboard query:

```
1. SELECT user_name, time_seconds
2. FROM scores
3. WHERE workout_id = ?
4. ORDER BY time_seconds ASC
5. LIMIT 20;
```

2. AMRAP (As Many Rounds/Reps As Possible)

What it means:

Within a fixed time window (e.g. 12 minutes), members cycle through a set of movements (like 10 Push-Ups, 15 Air Squats, 200 m Run) over and over, trying to do as many total repetitions (or "reps") as they can before time runs out.

- A **round** is one complete circuit of all movements.
- A **rep** is a single repetition of one movement (e.g. one Push-Up).

What you measure:

- **Full Rounds:** Count how many complete circuits they did.
- **Extra Reps:** After their last full round, they might get partway through another round; you count those extra reps too.

How to rank them:

Convert everything into a single "total reps" number:

```
1. total_reps = (rounds × reps_per_round) + extra_reps
```

Higher total_reps is better, so sort from highest to lowest.

Software flow:

1. Member enters:
   a. rounds_completed (integer)
   b. extra_reps (integer)
2. Calculate total_reps.
3. Store both raw fields and the computed total_reps.
4. Leaderboard query orders by total_reps DESC.

3. EMOM (Every Minute on the Minute)

What it means:

A coach prescribes a task at the start of each minute (e.g., "12 calorie row"), and the member must complete it before the minute is up. As soon as they finish, the remainder of the minute is rest time. The cycle repeats each minute for a set number of minutes (e.g. 10 rounds).

What you measure (two main options):

1. **Completion Rate:** How many intervals they fully "hit" on time (e.g., did they complete 12 calories of rowing each minute before the minute reset?).

2. **Total Workload:** Sum of whatever they did in each interval (e.g., total calories rowed across all intervals).

How to rank them:

- **Primary:** Number of intervals correctly hit (higher is better).

- **Secondary (tiebreaker):** Total workload across all intervals (higher is better).

Software flow:

1. Member enters for each round: calories_this_round.
2. Compute:

```
1. intervals_hit = count(rounds where calories_this_round ≥ target_calories)
2. total_calories = sum(calories_this_round)
```

3. Store both values.
4. Leaderboard sorts by intervals_hit DESC, then by total_calories DESC.

4. Chipper Workouts

What it means:

A "chipper" lists a long series of different movements that you do once in order (e.g., 50 Wall-Balls, 40 Kettlebell Swings, 30 Box Jumps, …) and you complete everything as fast as possible.

What you measure:

- Exactly the same as a "For Time" workout: total elapsed time to finish.

How to rank them:

- Lower time is better - sort ascending.

5. Interval Workouts

What it means:

Members alternate between periods of work (e.g., 30 seconds of Burpees) and rest (e.g., 30 seconds). A set number of rounds is prescribed (e.g., 8 rounds).

What you measure:

- **Total Reps:** How many reps they completed across all work intervals.

- **Consistency (optional):** Variation in reps between intervals (smaller variation means more consistent).

How to rank them:

1. Sort by total reps (higher is better).

2. If you want, use consistency as a secondary sort or simply display it as extra insight.

6. Handling Weights & Scaled Versions

Many movements involve weight (e.g., a 60 kg deadlift) and gyms often allow lighter "scaled" versions for beginners.

Store:

- load (numeric weight in kg or lb)
- is_scaled (boolean flag)

Filtering:

Let users view leaderboards "RX only" (no scaling) or "Scaled only."

Power Index:

For strength movements, you could calculate reps × load to highlight raw work performed.

STRUCTURED WORKOUT BUILDER:

In Common:

o   Warmup + Skill/ Strength + Cool Down mentioned in "understanding" as huge text field
o   Selector for type of workout

FOR TIME: (chipper)

o   How many rounds of prescribed workout to finish
o   How many subrounds in round
o   Workout builder A (as many as subrounds)
o   Time cap

AMRAP:

o   Workout builder A
o   Time limit
o   How many rounds of prescribed workout to finish

INTERVAL:

o   Workout builder B
o   // I AM NOT DOING ROUNDS (doesn't make sense and hard to do)

EMOM:

o   Num rounds (minutes)
o   Multiple input fields for separate workouts for each minute
o   Checkbox if it is same exercise for each minute

Workout builder A

+ button to add exercise

Exercise has exercise name as text field and num reps as number field

---

Workout builder B

+ button to add exercise

+ button to add rest

Exercise has exercise name as text field and duration/ seconds/ minutes as number field