UGOKI Implementation Plan: Next Steps for User Feature Integration

Strategic Roadmap for MVP Development
Version: 1.0 | December 2025
Status: Pre-Development Planning Phase

Executive Overview

This plan operationalizes the technical analysis findings into concrete development milestones, establishing the foundation for UGOKI's MVP launch. The focus is on creating a user-centric platform that delivers immediate value through IF-HIIT integration while maintaining architectural flexibility for future AI personalization layers.

Timeline Horizon: 16-20 weeks to MVP launch
Critical Path: Technology stack finalization → Data architecture → User flows → Development

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1. Finalized MVP Feature Scope

1.1 Core MVP Features (Must Have)

Phase 1: Foundation (Weeks 1-8)

Feature	Priority	Complexity	User Value	Dependencies
User authentication (OAuth social login + anonymous)	P0	Medium	Essential access	None
Onboarding flow (body type assessment, goals)	P0	Medium	Personalization foundation	Authentication
IF timer with 16/8 protocol	P0	Low-Medium	Core differentiator	User profile
Push notifications (fasting windows, reminders)	P0	Medium	Habit formation	Timer, permissions
Basic progress dashboard	P0	Medium	Value demonstration	Data collection
Weight/BMI tracking	P0	Low	Measurable outcomes	User input

Phase 2: Core Experience (Weeks 9-12)

Feature	Priority	Complexity	User Value	Dependencies
HIIT workout library (10-20 min sessions)	P0	High	Secondary pillar	Content creation
Workout video player	P0	Medium	User experience	Video hosting
Basic meal suggestions	P0	Medium	IF complement	Nutrition database
Workout completion tracking	P0	Low	Progress visibility	Dashboard

Phase 3: Engagement Loop (Weeks 13-16)

Feature	Priority	Complexity	User Value	Dependencies
Streak mechanics (fasting, workout consistency)	P0	Medium	Retention driver	Progress tracking
Milestone celebrations	P0	Low-Medium	Achievement recognition	Data analysis
Basic gamification (points, levels)	P0	Medium	Engagement layer	User activity

1.2 Early Adoption Features (Should Have)

Post-MVP Priority (Weeks 17-24)

Feature	Timeline	Strategic Value	Prerequisites
Wearable integration (HealthKit/Google Fit)	Week 17-18	Data depth, market expectation	MVP stable
Social follow/interaction system	Week 19-20	Community foundation	User base critical mass
Expanded fasting protocols (24h, 5:2)	Week 19	User progression	Core timer proven
Weekly meal planner	Week 21-22	Nutrition pillar completion	Meal database expanded
Meditation hub	Week 23	Holistic wellness	Audio content production
Barcode scanner	Week 24	Convenience feature	Camera permissions

1.3 Deferred Features (Could Have)

Post-Launch Roadmap (Months 6+)

- AI scheduling agents

- Voice control integration
- Live workout streaming
- Location-based features
- Influencer ecosystem
- Grocery delivery integration

1.4 Avatar/Character Growth System

Status: Elevated to MVP-critical based on retention analysis

Implementation Timeline: Weeks 13-16 (parallel to engagement loop)

Core Mechanics:

- Visual character evolution tied to user consistency
- Unlockable customization options through milestone achievements
- Character "health" reflects user fasting adherence
- Progression stages: Beginner → Practitioner → Optimizer → Master

Rationale: Progress visibility through avatar gamification has shown 40%+ retention improvement in wellness apps. This transforms abstract health metrics into tangible, emotional progress representation.

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2. Technology Stack Recommendation

2.1 Architecture Philosophy

Principles:

- Privacy-by-design (GDPR compliance from day one)
- Scalable microservices architecture
- Mobile-first responsive design
- Offline-capable with sync
- Cloud-agnostic where possible

2.2 Frontend Stack

Mobile Applications:

```
Primary: React Native (iOS + Android)
├── State Management: Redux Toolkit + Redux Persist
├── Navigation: React Navigation v6
├── UI Components: React Native Paper (Material Design)
├── Animations: React Native Reanimated
├── Forms: React Hook Form + Yup validation
├── Date/Time: date-fns
└── Charts/Visualization: Victory Native

Alternative consideration: Flutter (if team has Dart expertise)
```

Why React Native:

- Single codebase for iOS/Android (faster MVP)
- Large ecosystem and community
- Hot reload for rapid iteration
- Native module integration for wearables
- Strong TypeScript support

Web Application (Optional Phase 2):

```
Framework: Next.js 14+ (App Router)
├── UI Components: shadcn/ui (Radix + Tailwind)
├── State Management: Zustand or React Context
├── API Communication: React Query
├── Forms: React Hook Form
└── Authentication: NextAuth.js
```

2.3 Backend Stack

Core Services Architecture:

```
API Gateway: Kong or AWS API Gateway
├── Auth Service: Node.js + Passport.js
│   └── Database: PostgreSQL (user credentials)
├── User Service: Node.js (Express or Fastify)
│   └── Database: PostgreSQL (profiles, settings)
├── Fasting Service: Node.js
│   └── Database: PostgreSQL + TimescaleDB (time-series data)
├── Workout Service: Node.js
│   └── Database: PostgreSQL + MongoDB (video metadata)
├── Nutrition Service: Node.js
│   └── Database: PostgreSQL + Redis (caching)
├── Notification Service: Node.js
│   └── Queue: Bull (Redis-backed)
└── Analytics Service: Node.js
    └── Database: TimescaleDB + ClickHouse
```

Technology Justification:

Component	Choice	Rationale
Runtime	Node.js 20 LTS	JavaScript ecosystem consistency, excellent async I/O, TypeScript support
API Framework	Fastify	Fastest Node.js framework, schema validation, plugin architecture
Primary Database	PostgreSQL 16	ACID compliance, JSON support, mature ecosystem, GDPR compliance features
Time-Series	TimescaleDB	PostgreSQL extension, optimized for metrics/fasting data
Cache Layer	Redis 7	Fast in-memory storage, pub/sub for real-time features
Object Storage	AWS S3 / CloudFlare R2	Workout videos, user uploads, cost-effective CDN
Search	ElasticSearch	Meal/workout content search, user discovery

2.4 Infrastructure & DevOps

Cloud Platform:

```
Primary: AWS (recommended) or Google Cloud Platform
├── Compute: ECS Fargate (containerized services)
├── Database: RDS PostgreSQL (Multi-AZ)
├── Cache: ElastiCache Redis
├── Storage: S3 + CloudFront CDN
├── Queue: SQS
├── Monitoring: CloudWatch + DataDog
└── Secrets: AWS Secrets Manager
```

Alternative for Cost-Conscious MVP:

```
Platform: Railway.app or Render.com
├── Managed PostgreSQL
├── Container deployment
├── Automatic HTTPS
└── Built-in monitoring
```

CI/CD Pipeline:

```
Version Control: GitHub
├── CI: GitHub Actions
├── Testing: Jest + Cypress
├── Container Registry: Docker Hub / AWS ECR
├── Deployment: Automated via GitHub Actions
└── Environments: Dev → Staging → Production
```

2.5 Authentication & Security

```
Authentication Strategy:
├── OAuth 2.0 Providers: Google, Apple, Facebook
├── Anonymous Mode: Temporary token-based access
├── Session Management: JWT (access) + Refresh tokens
├── Password Security: Argon2 hashing
└── Rate Limiting: Express-rate-limit

Security Stack:
├── TLS: 1.3 minimum
├── CORS: Strict origin policies
├── Helmet.js: Security headers
├── OWASP validation
└── Audit logging: Winston + AWS CloudWatch
```

2.6 AI/ML Infrastructure (Post-MVP)

```
Phase 1 (MVP): Rule-based recommendations
└── Implementation: Business logic in backend services

Phase 2 (Months 3-6): Basic ML
├── Recommendation Engine: AWS Personalize
├── Content Filtering: Python scikit-learn
└── Deployment: AWS SageMaker

Phase 3 (Months 6+): Advanced personalization
├── LLM Integration: Claude API (Anthropic)
├── Custom Models: TensorFlow/PyTorch
├── Vector Database: Pinecone (meal/workout similarity)
└── Feature Store: Feast
```

2.7 Third-Party Integrations

Service	Purpose	Priority	Complexity
Stripe	Subscription payments	MVP	Low
Twilio/SendGrid	Email/SMS notifications	MVP	Low
Firebase Cloud Messaging	Push notifications	MVP	Medium
HealthKit (iOS)	Wearable data sync	Post-MVP	High
Google Fit (Android)	Wearable data sync	Post-MVP	High
Nutritionix API	Food database	MVP	Low
Sentry	Error tracking	MVP	Low
Mixpanel/Amplitude	Product analytics	MVP	Medium

2.8 Data Privacy & GDPR Compliance Stack

```
Privacy Architecture:
├── Data Regionalization: EU data in EU region (AWS Frankfurt/Ireland)
├── Encryption at Rest: AES-256 (database level)
├── Encryption in Transit: TLS 1.3
├── PII Masking: Automated field-level encryption
├── Right to Erasure: Automated deletion workflows
├── Data Export: Automated user data export API
└── Consent Management: Custom consent tracking system
```

```
GDPR Tooling:
├── Cookie Consent: OneTrust or custom solution
├── Data Mapping: Custom data lineage tracking
├── Audit Logs: Immutable log storage (S3 Glacier)
└── DPA Generation: Automated document templates
```

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3. User Flow Design & User-First Approach

3.1 Core User Journey Architecture

Design Philosophy:

- **Progressive disclosure:** Show complexity gradually as user advances
- **Micro-commitments:** Small actions leading to habit formation
- **Instant feedback:** Immediate response to every user action
- **Friction reduction:** Minimize steps to core value (fasting timer)

3.2 Primary User Flows

Flow 1: First-Time User Onboarding

```
┌─────────────────────────────────────────────────────────────┐
│              LANDING SCREEN                    │
│ • Value proposition headline                   │
│ • 3 key benefits visualization                 │
│ • Social proof (testimonials/stats)            │
│ • CTA: "Start Your Journey" / "Try Anonymous Mode"          │
└─────────────────────────────────────────────────────────────┘
            ↓
┌─────────────────────────────────────────────────────────────┐
│          AUTHENTICATION CHOICE                  │
│ Option 1: Continue with [Google/Apple/Facebook]       │
│ Option 2: Try Anonymous Mode (30-day trial)           │
│ • Privacy messaging: "Your health data is yours"      │
└─────────────────────────────────────────────────────────────┘
            ↓
┌─────────────────────────────────────────────────────────────┐
│          GOAL ASSESSMENT (Step 1/4)                  │
│ "What brings you to UGOKI?"                          │
│ □ Weight management                                  │
│ □ Increase energy levels                             │
│ □ Build muscle/strength                              │
│ □ Improve metabolic health                           │
│ □ Develop sustainable habits                         │
│ • Allow multiple selections                          │
│ • Progress indicator: 25% complete                   │
└─────────────────────────────────────────────────────────────┘
            ↓
┌─────────────────────────────────────────────────────────────┐
│          BODY TYPE ASSESSMENT (Step 2/4)              │
│ "Help us personalize your experience"                 │
│ • Visual body type selector (ectomorph/mesomorph/endomorph) │
│ • Current fitness level: Beginner/Intermediate/Advanced     │
│ • Input: Height, current weight, target weight        │
│ • Progress indicator: 50% complete                    │
└─────────────────────────────────────────────────────────────┘
            ↓
┌─────────────────────────────────────────────────────────────┐
│      FASTING EXPERIENCE ASSESSMENT (Step 3/4)          │
│ "Have you tried intermittent fasting before?"         │
│ ○ Never tried → Recommend 16/8 with gradual transition    │
│ ○ Tried but stopped → Understand blockers, offer support  │
│ ○ Currently practicing → Match to existing protocol       │
│ • Progress indicator: 75% complete                    │
└─────────────────────────────────────────────────────────────┘
            ↓
┌─────────────────────────────────────────────────────────────┐
```

```
│        SCHEDULE PERSONALIZATION (Step 4/4)              │
│ "When can you commit 15-20 minutes daily?"              │
│ • Morning / Afternoon / Evening preference              │
│ • Workout timing relative to fasting window             │
│ • Notification preferences setup                        │
│ • Progress indicator: 100% complete                     │
└─────────────────────────────────────────────────────────┘
                       ↓
┌─────────────────────────────────────────────────────────┐
│          PERSONALIZED PLAN REVEAL                       │
│ "Your Optimized Plan is Ready!"                         │
│ • Visual summary of recommended protocol                │
│ • First week expectations                               │
│ • Avatar character introduction (Level 1)               │
│ • CTA: "Start First Fast" (high-energy button)          │
└─────────────────────────────────────────────────────────┘
                       ↓
┌─────────────────────────────────────────────────────────┐
│             HOME DASHBOARD                              │
│ (User enters core experience loop)                      │
└─────────────────────────────────────────────────────────┘
```

Design Decisions:

Element	Decision	Rationale
Onboarding Length	4 steps maximum	Completion rates drop significantly after 4 screens
Anonymous Option	Upfront choice	Reduces signup friction, allows trial before commitment
Progress Indicator	Visible at all steps	Reduces abandonment through goal-gradient effect
Personal Data	Minimal initially	GDPR compliance, trust building
Value Demonstration	Before signup	40% higher conversion when users see value first

Flow 2: Daily Active User Core Loop

```
┌─────────────────────────────────────────────┐
│            HOME DASHBOARD                    │
│                                 │
│ Avatar Status:  [Character visual] Level 3 - Practitioner     │
│ ┌─────────────────────────────────────────┐ │
│ │ Fasting Timer: 12:34:12 / 16:00:00          │ │
│ │ [Visual progress ring]               │ │
│ │ Status: FASTING 💧 Stay hydrated!            │ │
│ └─────────────────────────────────────────┘ │
│                                 │
│ Today's Goals: [2/3 Complete]                │
│ ✓ Complete 16-hour fast                      │
│ ✓ Log weight                         │
│ □ Complete HIIT workout (15 min)             │
│                                 │
│ Quick Actions:                          │
│ [Start Workout] [Log Meal] [View Progress]          │
│                                 │
│ Streak: 🔥 7 days | Next Milestone: 14 days (7 days away)  │
└─────────────────────────────────────────────┘
        ↓ (User taps Start Workout)
┌─────────────────────────────────────────────┐
│         WORKOUT SELECTION                   │
│ Recommended for You:                      │
│ ┌───────────────────────────────────────┐ │
│ │ Full Body HIIT - 15 min  [Best for fasted workouts] │ │
│ │ Difficulty: ●●○○○                    │ │
│ │ Equipment: None                      │ │
│ │ [START] ─────────────────────────────────────── │ │
│ └───────────────────────────────────────┘ │
│                                 │
│ Other Options:                          │
│ • Upper Body Focus - 12 min                  │
│ • Core Strength - 10 min                 │
│ • Low Impact Cardio - 20 min                 │
└─────────────────────────────────────────────┘
        ↓ (User starts workout)
┌─────────────────────────────────────────────┐
│          WORKOUT IN PROGRESS                 │
│ Exercise 2/8: Jumping Jacks                  │
│ ┌─────────────────────────────────────────┐ │
│ │      [Video Player]                  │ │
│ │    Instructor demonstrating               │ │
│ └─────────────────────────────────────────┘ │
│                                 │
│ Time Remaining: 00:35                    │
│ [Pause] [Next Exercise] [Skip]              │
│                                             │
│ Circuit Progress: ██████░░ 60%              │
│ Calories Burned (est.): 87 kcal             │
└─────────────────────────────────────────────┘

          ↓ (Workout completed)

┌─────────────────────────────────────────────┐
│       WORKOUT COMPLETION CELEBRATION        │
│ 🎉 Awesome Work! 🎉                          │
│                                             │
│ [Avatar levels up animation]                │
│ Your character gained 50 XP!                │
│                                             │
│ Today's Workout: Full Body HIIT             │
│ Duration: 15:23                             │
│ Est. Calories: 142 kcal                     │
│                                             │
│ Streak maintained: 🔥 7 days                 │
│ [Share Achievement] [Done]                  │
└─────────────────────────────────────────────┘

          ↓ (Returns to dashboard)

┌─────────────────────────────────────────────┐
│        HOME DASHBOARD (Updated)             │
│ Today's Goals: [3/3 Complete] ✨             │
│ ✓ Complete 16-hour fast                     │
│ ✓ Log weight                                │
│ ✓ Complete HIIT workout                     │
│                                             │
│ Perfect Day Bonus: +100 XP                  │
└─────────────────────────────────────────────┘
```

Flow Optimization Principles:

1. **Minimal Taps to Value:** Core actions (start fast, start workout) accessible in 2 taps maximum
2. **Contextual Recommendations:** Workout suggestions adapt to fasting state (fasted vs. fed)
3. **Progressive Motivation:** Escalating celebration intensity as streaks build
4. **Friction Points Identified:**
   - Video loading delays → Implement progressive streaming + preloading
   - Workout abandonment → Add pause capability, not just quit
   - Notification fatigue → Intelligent timing based on usage patterns

Flow 3: Progress Review & Insight Discovery

```
┌─────────────────────────────────────────────────────┐
│           PROGRESS DASHBOARD                  │
│ [Tab Navigation: Overview | Fasting | Workouts | Nutrition]  │
│                                     │
│ ═══════════════ OVERVIEW TAB ═══════════════         │
│                                     │
│ Your Journey: Day 21                         │
│ [Avatar character - Level 5 - Advanced Practitioner]       │
│                                     │
│ ┌───────────────────────────────────────────────┐ │
│ │ Weekly Consistency Score: 89% ⬆️ +12% vs last week   │ │
│ │ [Circular progress visualization]            │ │
│ └───────────────────────────────────────────────┘ │
│                                     │
│ Key Metrics (Last 7 Days):                     │
│ • Fasting adherence: 6/7 days                  │
│ • Workouts completed: 5/7 days                   │
│ • Weight change: -1.2 kg ↓                    │
│ • Streak: 21 days 🔥                        │
│                                     │
│ Insights:                                │
│ 💡 Your workout consistency is highest on Mondays & Thursdays │
│ 💡 Fasting becomes easier after day 3 of your weekly cycle  │
│                                     │
│ [View Detailed Stats] [Share Progress]            │
└─────────────────────────────────────────────────────┘
```

Progressive Disclosure Strategy:

- **Week 1:** Basic metrics only (fast completion, workouts)
- **Week 2-4:** Add trend visualizations
- **Month 2+:** Introduce behavioral insights and pattern recognition
- **Month 3+:** Comparative analytics (you vs. similar users)

3.3 Critical User Experience Decisions

Decision Matrix: Core UX Trade-offs

Feature	User Benefit	Implementation Complexity	MVP Decision
Offline mode for timer	Continue fasting tracking without connection	High (sync conflicts)	✅ MVP - Critical for reliability
Video download for workouts	Exercise without data usage	High (storage, licensing)	❌ Post-MVP - WiFi-only notice acceptable
Real-time social features	Community connection	High (infrastructure)	❌ Post-MVP - Async community sufficient initially
Biometric login	Convenience, security	Medium (platform APIs)	✅ MVP - Industry standard
Dark mode	Accessibility, preference	Low (theme system)	✅ MVP - High user expectation
Multi-language	Market expansion	High (translation, testing)	❌ Post-MVP - Launch English-only

Accessibility Compliance

WCAG 2.1 Level AA Requirements:

Requirement	Implementation	Priority
Color contrast	4.5:1 minimum for text	MVP
Touch targets	44x44pt minimum size	MVP
Screen reader support	Semantic HTML, ARIA labels	MVP
Keyboard navigation	Full app navigable without touch	Post-MVP (web)
Text scaling	Support 200% scaling	MVP
Reduced motion	Respect OS animation preferences	MVP

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4. User Research Plan: IF-HIIT Integration Validation

4.1 Research Objectives

Primary Question:
Does the integrated IF-HIIT positioning resonate with busy professionals as a differentiated value proposition?

Secondary Questions:

1. Do users perceive the 15-20 minute commitment as achievable?
2. What are the primary blockers to fasting adoption?
3. How important is workout timing flexibility relative to fasting windows?
4. What role does community/social features play in sustained engagement?
5. Do users trust AI-driven recommendations vs. static plans?

4.2 Research Methodology

Phase 1: Qualitative Discovery (Weeks 1-2)

Method: In-depth User Interviews
Sample Size: 15-20 participants
Participant Profile:

- Age: 28-45
- Occupation: Professional roles (office-based, remote-capable)
- Current state: Attempted wellness apps/programs in past 12 months
- Mix: 40% currently using fasting apps, 60% fitness-curious but inconsistent

Interview Protocol (45 minutes):

```
Part 1: Current State Exploration (10 min)
- Typical daily schedule walkthrough
- Current wellness habits and tools
- Pain points with existing solutions
- Abandoned apps/programs and why

Part 2: Concept Exposure (15 min)
- UGOKI value proposition presentation
- Reaction to IF-HIIT integration concept
- Perceived benefits vs. concerns
- Pricing sensitivity discussion

Part 3: Feature Prioritization (10 min)
- Card sorting exercise: Must-have vs. nice-to-have features
- Scenario-based questions: How would you use X feature?
- Competition: What would make you switch from current solution?

Part 4: Usability Preview (10 min)
- Onboarding flow walkthrough (wireframes)
- First impressions of UI direction
- Friction points identification
```

Analysis Framework:

- Thematic coding for recurring pain points
- Jobs-to-be-done mapping
- Competitive force analysis (what keeps users with current solutions)

Phase 2: Quantitative Validation (Weeks 3-4)

Method: Online Survey + Landing Page Test
Sample Size: 300-500 respondents
Distribution: Social media ads, wellness forums, professional networks

Survey Structure:

```
Section 1: Demographic & Psychographic Profiling
- Age, occupation, income bracket
- Current wellness app usage
- Self-assessed fitness level
- Motivation archetypes (health, aesthetics, performance, longevity)

Section 2: Value Proposition Testing (A/B split)
Group A: IF-HIIT integrated messaging
Group B: Separate IF and HIIT messaging
- Measure: Interest rating (1-5 scale)
- Likelihood to download (1-5 scale)

Section 3: Feature Importance Ranking
- MaxDiff analysis: Force ranking of 12 feature pairs
- Identifies relative importance objectively

Section 4: Pricing & Willingness-to-Pay
- Van Westendorp Price Sensitivity Meter
- Ranges: £4.99 - £19.99/month
- Freemium vs. premium feature allocation preferences

Section 5: Competitive Landscape Perception
- Current app NPS scores
- Switching barriers identification
- UGOKI differentiation perception check
```

Landing Page Experiment:

```
Setup:
- 3 landing page variants with different messaging angles
  Variant A: "Optimize Your Life in 15 Minutes Daily"
  Variant B: "IF-HIIT Integration for Busy Professionals"
  Variant C: "Transform Your Health Without Sacrificing Your Career"
- CTA: "Join Early Access Waitlist"
- Track: Bounce rate, time on page, conversion rate

Metrics:
- Primary: Email signup conversion rate
- Secondary: Page engagement (scroll depth, video watch time)
- Qualitative: Exit survey for non-converters
```

Phase 3: Prototype Usability Testing (Weeks 5-6)

Method: Moderated Remote Usability Tests
Sample Size: 12-15 participants (mix of interview and new participants)

Tool: Interactive Figma prototype

Task Scenarios:

1. **Onboarding Completion:** "You've decided to try UGOKI. Complete the signup and setup process."
    - Success metric: Completion without assistance
    - Measure: Time to complete, friction points, error recovery
2. **First Fast Initiation:** "Start your first 16-hour fast."
    - Success metric: Timer started correctly
    - Measure: Clarity of instructions, confidence level
3. **Workout Discovery:** "Find a workout suitable for fasting state."
    - Success metric: Appropriate workout selected
    - Measure: Navigation efficiency, filtering comprehension
4. **Progress Review:** "Check your progress from the past week."
    - Success metric: Locates and interprets dashboard
    - Measure: Data comprehension, insight actionability

Observation Protocol:

- Think-aloud narration
- Emotion tracking (frustration, delight moments)
- Post-task confidence ratings
- System Usability Scale (SUS) survey

4.3 Success Criteria & Decision Gates

Go/No-Go Criteria for MVP Development:

Metric	Target	Implication if Missed
Value proposition resonance	70%+ "very interested"	Revise core messaging
Perceived achievability	80%+ believe they can commit 15-20 min	Reduce time commitment messaging
Feature set alignment	85%+ of MVP features rated "important/critical"	Reprioritize feature scope
Onboarding completion (prototype)	90%+ complete without major blockers	Simplify onboarding flow
Differentiation perception	60%+ see clear difference from competitors	Strengthen unique positioning
Pricing acceptance	Median WTP ≥ £9.99/month	Adjust monetization strategy

Pivot Indicators:

- If IF-HIIT integration tests worse than separate features → Reconsider positioning
- If workout timing flexibility is top concern → Prioritize "anytime HIIT" library
- If community features rate higher than expected → Accelerate social feature roadmap

4.4 Research Timeline & Resource Requirements

```
Week 1-2:  Participant recruitment & interview scheduling
           ├── Leverage: Wellness communities, professional networks
           └── Incentive: £30 Amazon voucher per interview

Week 3:    Interview execution (15-20 sessions)
           ├── Tools: Zoom recording, Otter.ai transcription
           └── Team: 1 researcher + 1 note-taker

Week 4:    Thematic analysis & insight synthesis
           └── Output: Research findings deck

Week 5:    Survey design & landing page development
           ├── Tools: Typeform, Webflow/Framer
           └── Ad budget: £1,500-2,000 (Facebook, LinkedIn ads)

Week 6:    Survey deployment & data collection
           └── Target: 300+ complete responses

Week 7:    Prototype usability testing
```

```
        ├── Tools: Figma, Maze.design for remote testing
        └── Incentive: £40 per 60-minute session

Week 8:    Final analysis & recommendations
        └── Output: Research summary + feature prioritization updates
```

Budget Estimate:

- Interview incentives: £450-600
- Survey incentives + ad spend: £2,000-2,500
- Usability test incentives: £480-600
- Tools/software: £500
- **Total: £3,430-4,200**

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5. Detailed Data Model (Privacy-by-Design)

5.1 Data Architecture Principles

Privacy-by-Design Framework:

1. **Data Minimization:** Collect only data essential for feature functionality
2. **Purpose Limitation:** Data used exclusively for stated purposes
3. **Storage Limitation:** Retention policies with automated deletion
4. **Pseudonymization:** User data separated from personally identifiable information
5. **Encryption Standards:** AES-256 at rest, TLS 1.3 in transit
6. **Right to Erasure:** Complete data deletion workflows within 30 days
7. **Data Portability:** Standardized export format (JSON)

5.2 Core Data Entities

Entity 1: User Account

```
sql
```

```
-- Primary user identity and authentication
CREATE TABLE users (
    user_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    created_at TIMESTAMP NOT NULL DEFAULT NOW(),
    updated_at TIMESTAMP NOT NULL DEFAULT NOW(),
    account_status VARCHAR(20) NOT NULL DEFAULT 'active', -- active, suspended, deleted
    account_type VARCHAR(20) NOT NULL, -- authenticated, anonymous
    email_hash VARCHAR(64), -- SHA-256 hash, not stored plaintext
    auth_provider VARCHAR(50), -- google, apple, facebook, anonymous
    auth_provider_id VARCHAR(255), -- External provider user ID
    last_login TIMESTAMP,
    timezone VARCHAR(50),
    locale VARCHAR(10) DEFAULT 'en-GB',

    -- GDPR compliance fields
    consent_marketing BOOLEAN DEFAULT false,
    consent_analytics BOOLEAN DEFAULT false,
    consent_timestamp TIMESTAMP,
    data_retention_override INTERVAL, -- User-specified retention period

    -- Security
    failed_login_attempts INT DEFAULT 0,
    account_locked_until TIMESTAMP,

    CONSTRAINT check_account_status CHECK (account_status IN ('active', 'suspended', 'deleted', 'pending_deletion'))
);

-- Indexes
CREATE INDEX idx_users_account_type ON users(account_type);
CREATE INDEX idx_users_account_status ON users(account_status);
CREATE INDEX idx_users_email_hash ON users(email_hash) WHERE account_type = 'authenticated';
```

Design Decisions:

- Email stored as hash, not plaintext (prevents PII exposure in database dumps)
- `auth_provider_id` stored separately from email for OAuth users
- Anonymous accounts have limited lifespan (30 days without conversion)
- Soft delete with `deleted` status before permanent removal

Entity 2: User Profile (PII Separated)

```
sql
```

```
-- Non-identifying personal preferences
CREATE TABLE user_profiles (
    profile_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    created_at TIMESTAMP NOT NULL DEFAULT NOW(),
    updated_at TIMESTAMP NOT NULL DEFAULT NOW(),

    -- Physical attributes (pseudonymized storage)
    date_of_birth_encrypted BYTEA, -- AES-256 encrypted
    gender VARCHAR(20), -- self-identified, optional
    height_cm DECIMAL(5,2),

    -- Fitness assessment
    body_type VARCHAR(20), -- ectomorph, mesomorph, endomorph
    fitness_level VARCHAR(20), -- beginner, intermediate, advanced
    activity_multiplier DECIMAL(3,2) DEFAULT 1.2, -- TDEE calculation

    -- Goals and preferences
    primary_goals JSONB, -- Array of goal IDs
    dietary_preferences JSONB, -- vegetarian, vegan, keto, etc.
    workout_time_preference VARCHAR(20), -- morning, afternoon, evening
    notification_preferences JSONB,

    -- Avatar/gamification
    avatar_id VARCHAR(50),
    avatar_level INT DEFAULT 1,
    total_xp INT DEFAULT 0,

    UNIQUE(user_id)
);

-- Indexes
CREATE INDEX idx_profile_user ON user_profiles(user_id);
CREATE INDEX idx_profile_fitness_level ON user_profiles(fitness_level);
CREATE INDEX idx_profile_goals ON user_profiles USING GIN (primary_goals);
```

Design Decisions:

- Date of birth encrypted (age calculations done in application layer)
- Goals stored as JSONB array for flexibility
- Avatar state stored here for quick access (denormalized)
- No direct foreign keys to external PII tables

Entity 3: Fasting Sessions (Time-Series)

sql

```sql
-- Fasting timer events and history (TimescaleDB hypertable)
CREATE TABLE fasting_sessions (
    session_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    protocol_type VARCHAR(20) NOT NULL, -- 16-8, 24h, 5-2, custom
    started_at TIMESTAMP NOT NULL,
    scheduled_end_at TIMESTAMP NOT NULL,
    actual_ended_at TIMESTAMP, -- NULL if in progress
    status VARCHAR(20) NOT NULL DEFAULT 'active', -- active, completed, abandoned

    -- Metrics
    duration_hours DECIMAL(5,2),
    adherence_percentage DECIMAL(5,2),

    -- Context
    break_reason VARCHAR(50), -- scheduled, early_break, abandoned
    user_notes TEXT,

    -- Metadata
    created_at TIMESTAMP NOT NULL DEFAULT NOW(),

    CONSTRAINT check_status CHECK (status IN ('active', 'completed', 'abandoned'))
);

-- Convert to TimescaleDB hypertable for time-series optimization
SELECT create_hypertable('fasting_sessions', 'started_at',
    chunk_time_interval => INTERVAL '1 month');

-- Indexes
CREATE INDEX idx_fasting_user_time ON fasting_sessions(user_id, started_at DESC);
CREATE INDEX idx_fasting_status ON fasting_sessions(user_id, status);
CREATE INDEX idx_fasting_protocol ON fasting_sessions(protocol_type);

-- Continuous aggregate for streak calculation
CREATE MATERIALIZED VIEW fasting_daily_summary
WITH (timescaledb.continuous) AS
SELECT user_id,
       time_bucket('1 day', started_at) AS day,
       COUNT(*) as sessions_count,
       SUM(CASE WHEN status = 'completed' THEN 1 ELSE 0 END) as completed_count,
       AVG(adherence_percentage) as avg_adherence
FROM fasting_sessions
GROUP BY user_id, time_bucket('1 day', started_at);
```

Design Decisions:

- TimescaleDB hypertable for efficient time-series queries
- Continuous aggregate for real-time streak calculations
- User notes stored separately from structured data
- Adherence percentage calculated: (actual_duration / scheduled_duration) * 100

Entity 4: Workouts and Activity

```sql
```

```sql
-- Workout catalog (content)
CREATE TABLE workout_library (
    workout_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    title VARCHAR(255) NOT NULL,
    description TEXT,
    duration_minutes INT NOT NULL,
    difficulty_level INT CHECK (difficulty_level BETWEEN 1 AND 5),
    workout_type VARCHAR(50), -- hiit, strength, cardio, mobility
    equipment_required JSONB DEFAULT '[]', -- Array of equipment IDs
    body_focus JSONB, -- Array: full-body, upper, lower, core

    -- Content references
    video_url VARCHAR(500),
    thumbnail_url VARCHAR(500),
    instructor_name VARCHAR(100),

    -- Metadata
    calories_estimate_range JSONB, -- {min: 100, max: 200}
    suitable_for_fasting BOOLEAN DEFAULT true,

    -- Accessibility
    modifications_available BOOLEAN DEFAULT false,
    low_impact_version BOOLEAN DEFAULT false,

    created_at TIMESTAMP NOT NULL DEFAULT NOW(),
    is_published BOOLEAN DEFAULT false
);

-- User workout sessions (completed activities)
CREATE TABLE workout_sessions (
    session_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    workout_id UUID REFERENCES workout_library(workout_id),

    -- Timing
    started_at TIMESTAMP NOT NULL,
    completed_at TIMESTAMP,
    duration_minutes DECIMAL(5,2),

    -- Status
    status VARCHAR(20) NOT NULL DEFAULT 'in_progress', -- in_progress, completed, abandoned
    completion_percentage INT,

    -- Self-reported metrics
    difficulty_rating INT CHECK (difficulty_rating BETWEEN 1 AND 5),
    energy_level_before INT CHECK (energy_level_before BETWEEN 1 AND 5),
    energy_level_after INT CHECK (energy_level_after BETWEEN 1 AND 5),
    user_notes TEXT,

    -- Calculated metrics (from wearables if available)
    calories_burned INT,
    heart_rate_avg INT,
    heart_rate_max INT,

    created_at TIMESTAMP NOT NULL DEFAULT NOW(),

    CONSTRAINT check_status CHECK (status IN ('in_progress', 'completed', 'abandoned'))
);

-- Convert to hypertable
SELECT create_hypertable('workout_sessions', 'started_at',
    chunk_time_interval => INTERVAL '1 month');

-- Indexes
CREATE INDEX idx_workout_sessions_user_time ON workout_sessions(user_id, started_at DESC);
CREATE INDEX idx_workout_sessions_status ON workout_sessions(user_id, status);
CREATE INDEX idx_workout_library_type ON workout_library(workout_type);
CREATE INDEX idx_workout_library_published ON workout_library(is_published) WHERE is_published = true;
```

Design Decisions:

- Workout library separate from user sessions (one-to-many)
- Self-reported metrics stored alongside wearable data
- Energy levels tracked to identify optimal workout timing
- Completion percentage enables partial workout credit

Entity 5: Nutrition and Meal Tracking

sql

```
-- Food database (reference data)
CREATE TABLE food_items (
    food_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    name VARCHAR(255) NOT NULL,
    brand VARCHAR(255),
    barcode VARCHAR(50), -- For scanner integration

    -- Nutrition per 100g
    calories DECIMAL(7,2),
    protein_g DECIMAL(6,2),
    carbs_g DECIMAL(6,2),
    fat_g DECIMAL(6,2),
    fiber_g DECIMAL(6,2),

    -- Additional micronutrients (optional)
    sodium_mg INT,
    sugar_g DECIMAL(6,2),

    -- Categorization
    food_category VARCHAR(50),
    dietary_flags JSONB, -- vegan, gluten-free, etc.

    -- Data source
    data_source VARCHAR(50), -- nutritionix, usda, user_created
    verified BOOLEAN DEFAULT false,

    created_at TIMESTAMP NOT NULL DEFAULT NOW()
);

-- User meal logs
CREATE TABLE meal_logs (
    log_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    logged_at TIMESTAMP NOT NULL,
    meal_type VARCHAR(20), -- breakfast, lunch, dinner, snack

    -- Fasting context
    within_eating_window BOOLEAN,
    hours_since_fast_break DECIMAL(4,2),

    created_at TIMESTAMP NOT NULL DEFAULT NOW()
);

-- Meal log items (many-to-one with meal_logs)
CREATE TABLE meal_log_items (
    item_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
```

```sql
    meal_log_id UUID NOT NULL REFERENCES meal_logs(log_id) ON DELETE CASCADE,
    food_id UUID REFERENCES food_items(food_id),

    -- Custom food entry (if not in database)
    custom_food_name VARCHAR(255),

    -- Portion
    serving_size_g DECIMAL(7,2),
    servings DECIMAL(5,2) DEFAULT 1.0,

    -- Calculated nutrition (denormalized for quick access)
    calories DECIMAL(7,2),
    protein_g DECIMAL(6,2),
    carbs_g DECIMAL(6,2),
    fat_g DECIMAL(6,2)
);

-- Convert meal_logs to hypertable
SELECT create_hypertable('meal_logs', 'logged_at',
    chunk_time_interval => INTERVAL '1 month');

-- Indexes
CREATE INDEX idx_meal_logs_user_time ON meal_logs(user_id, logged_at DESC);
CREATE INDEX idx_food_items_barcode ON food_items(barcode) WHERE barcode IS NOT NULL;
CREATE INDEX idx_food_items_name ON food_items USING gin(to_tsvector('english', name));
```

Design Decisions:

- Food database pre-populated from Nutritionix API
- User meal logs reference food items (normalized)
- Nutrition values denormalized in meal_log_items for historical accuracy
- Fasting context tracked automatically
- Barcode index for quick scanner lookup

Entity 6: Body Metrics (Sensitive Health Data)

sql

```
-- Weight and body composition tracking
CREATE TABLE body_metrics (
    metric_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    recorded_at TIMESTAMP NOT NULL,

    -- Primary metrics (encrypted at rest via database-level encryption)
    weight_kg DECIMAL(5,2) NOT NULL,
    body_fat_percentage DECIMAL(4,2),
    muscle_mass_kg DECIMAL(5,2),
    bmi DECIMAL(4,2),

    -- Measurement method
    measurement_method VARCHAR(50), -- scale, manual, bioelectrical_impedance, dexa
    data_source VARCHAR(50), -- manual, wearable_sync, app_integration

    -- Context
    time_of_day VARCHAR(20), -- morning, evening (affects consistency)
    user_notes TEXT,

    created_at TIMESTAMP NOT NULL DEFAULT NOW()
);

-- Convert to hypertable
SELECT create_hypertable('body_metrics', 'recorded_at',
    chunk_time_interval => INTERVAL '1 month');

-- Continuous aggregate for trend analysis
CREATE MATERIALIZED VIEW body_metrics_weekly_avg
WITH (timescaledb.continuous) AS
SELECT user_id,
       time_bucket('7 days', recorded_at) AS week,
       AVG(weight_kg) as avg_weight,
       AVG(body_fat_percentage) as avg_bf_pct,
       AVG(bmi) as avg_bmi,
       COUNT(*) as measurement_count
FROM body_metrics
GROUP BY user_id, time_bucket('7 days', recorded_at);

-- Indexes
CREATE INDEX idx_body_metrics_user_time ON body_metrics(user_id, recorded_at DESC);
```

Design Decisions:

- All body metrics in single table (simplifies queries)

- Measurement method tracked (self-reported vs. device accuracy)
- Time of day tracked for consistency recommendations
- Weekly aggregates for trend visualization without raw data exposure

Entity 7: Gamification & Achievements

```
sql
```

```
-- Achievement definitions
CREATE TABLE achievements (
    achievement_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    name VARCHAR(255) NOT NULL,
    description TEXT,
    achievement_type VARCHAR(50), -- streak, milestone, special

    -- Unlock criteria (JSONB for flexibility)
    criteria JSONB NOT NULL,
    -- Example: {"type": "fasting_streak", "days": 7}
    -- Example: {"type": "total_workouts", "count": 50}

    -- Rewards
    xp_reward INT DEFAULT 0,
    badge_image_url VARCHAR(500),

    -- Visibility
    is_hidden BOOLEAN DEFAULT false, -- Secret achievements
    display_order INT DEFAULT 0,

    created_at TIMESTAMP NOT NULL DEFAULT NOW()
);

-- User achievement unlocks
CREATE TABLE user_achievements (
    user_achievement_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    achievement_id UUID NOT NULL REFERENCES achievements(achievement_id),
    unlocked_at TIMESTAMP NOT NULL DEFAULT NOW(),

    -- Progress toward next tier (if applicable)
    current_progress INT DEFAULT 0,

    UNIQUE(user_id, achievement_id)
);

-- Streak tracking (denormalized for performance)
CREATE TABLE user_streaks (
    streak_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    streak_type VARCHAR(50) NOT NULL, -- fasting, workout, perfect_day

    -- Current streak
    current_streak_days INT DEFAULT 0,
    current_streak_start DATE,
    -- Best streak
    longest_streak_days INT DEFAULT 0,
    longest_streak_start DATE,
    longest_streak_end DATE,

    -- Last activity
    last_activity_date DATE,

    -- Freeze tokens
    freeze_tokens_available INT DEFAULT 0,
    freeze_tokens_used INT DEFAULT 0,

    updated_at TIMESTAMP NOT NULL DEFAULT NOW(),

    UNIQUE(user_id, streak_type)
);

-- Indexes
CREATE INDEX idx_user_achievements_user ON user_achievements(user_id);
CREATE INDEX idx_user_streaks_user ON user_streaks(user_id);
```

Design Decisions:

- Achievement criteria stored as flexible JSONB
- Streaks denormalized for quick dashboard queries
- Freeze tokens prevent punishing real-life interruptions
- Progress tracking enables multi-tier achievements

Entity 8: Social & Community

sql

```
```

```sql
-- User relationships (following system)
CREATE TABLE user_relationships (
    relationship_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    follower_user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    following_user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    created_at TIMESTAMP NOT NULL DEFAULT NOW(),

    -- Relationship type
    relationship_type VARCHAR(20) DEFAULT 'follow', -- follow, squad, accountability_partner

    -- Privacy settings
    approved BOOLEAN DEFAULT true, -- For private accounts
    notifications_enabled BOOLEAN DEFAULT true,

    UNIQUE(follower_user_id, following_user_id),
    CHECK (follower_user_id != following_user_id)
);

-- User posts (progress sharing)
CREATE TABLE user_posts (
    post_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    created_at TIMESTAMP NOT NULL DEFAULT NOW(),

    -- Content
    caption TEXT,
    post_type VARCHAR(50), -- progress_photo, milestone, text, workout_completion

    -- Attached data (references to other entities)
    attached_workout_session_id UUID REFERENCES workout_sessions(session_id),
    attached_achievement_id UUID REFERENCES achievements(achievement_id),

    -- Media
    media_urls JSONB, -- Array of image/video URLs

    -- Visibility
    visibility VARCHAR(20) DEFAULT 'followers', -- public, followers, squad, private

    -- Engagement metrics (denormalized for performance)
    like_count INT DEFAULT 0,
    comment_count INT DEFAULT 0
);

-- Post engagement
CREATE TABLE post_likes (
    like_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    post_id UUID NOT NULL REFERENCES user_posts(post_id) ON DELETE CASCADE,
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    created_at TIMESTAMP NOT NULL DEFAULT NOW(),

    UNIQUE(post_id, user_id)
);

CREATE TABLE post_comments (
    comment_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    post_id UUID NOT NULL REFERENCES user_posts(post_id) ON DELETE CASCADE,
    user_id UUID NOT NULL REFERENCES users(user_id) ON DELETE CASCADE,
    created_at TIMESTAMP NOT NULL DEFAULT NOW(),

    comment_text TEXT NOT NULL,

    -- Moderation
    is_flagged BOOLEAN DEFAULT false,
    is_hidden BOOLEAN DEFAULT false
);

-- Indexes
CREATE INDEX idx_relationships_follower ON user_relationships(follower_user_id);
CREATE INDEX idx_relationships_following ON user_relationships(following_user_id);
CREATE INDEX idx_posts_user_time ON user_posts(user_id, created_at DESC);
CREATE INDEX idx_posts_visibility ON user_posts(visibility);
CREATE INDEX idx_post_likes_post ON post_likes(post_id);
CREATE INDEX idx_post_comments_post ON post_comments(post_id);
```

Design Decisions:

- Follow model (not mutual friendship)
- Squad feature uses same relationship table with type flag
- Post engagement metrics denormalized for feed performance
- Moderation flags for community safety

5.3 Privacy & GDPR Implementation Details

Right to Access (GDPR Article 15)

```
sql
```

```
-- Automated data export function
CREATE OR REPLACE FUNCTION generate_user_data_export(target_user_id UUID)
RETURNS JSON AS $$
DECLARE
    export_data JSON;
BEGIN
    SELECT json_build_object(
        'user_account', (SELECT row_to_json(u) FROM users u WHERE user_id = target_user_id),
        'profile', (SELECT row_to_json(p) FROM user_profiles p WHERE user_id = target_user_id),
        'fasting_sessions', (SELECT json_agg(f) FROM fasting_sessions f WHERE user_id = target_user_id),
        'workout_sessions', (SELECT json_agg(w) FROM workout_sessions w WHERE user_id = target_user_id),
        'meal_logs', (SELECT json_agg(m) FROM meal_logs m WHERE user_id = target_user_id),
        'body_metrics', (SELECT json_agg(b) FROM body_metrics b WHERE user_id = target_user_id),
        'achievements', (SELECT json_agg(a) FROM user_achievements a WHERE user_id = target_user_id),
        'export_timestamp', NOW()
    ) INTO export_data;

    RETURN export_data;
END;
$$ LANGUAGE plpgsql;
```

Right to Erasure (GDPR Article 17)

sql

```sql
-- Automated user deletion workflow
CREATE OR REPLACE FUNCTION anonymize_and_delete_user(target_user_id UUID)
RETURNS BOOLEAN AS $$
BEGIN
    -- Step 1: Anonymize public-facing content (posts, comments)
    UPDATE user_posts
    SET caption = '[Deleted User]',
        media_urls = '[]'::jsonb
    WHERE user_id = target_user_id;

    UPDATE post_comments
    SET comment_text = '[Comment Deleted]'
    WHERE user_id = target_user_id;

    -- Step 2: Delete personal health data
    DELETE FROM body_metrics WHERE user_id = target_user_id;
    DELETE FROM meal_logs WHERE user_id = target_user_id;
    DELETE FROM fasting_sessions WHERE user_id = target_user_id;
    DELETE FROM workout_sessions WHERE user_id = target_user_id;

    -- Step 3: Delete profile and achievements
    DELETE FROM user_profiles WHERE user_id = target_user_id;
    DELETE FROM user_achievements WHERE user_id = target_user_id;
    DELETE FROM user_streaks WHERE user_id = target_user_id;

    -- Step 4: Delete relationships
    DELETE FROM user_relationships
    WHERE follower_user_id = target_user_id
      OR following_user_id = target_user_id;

    -- Step 5: Mark user account as deleted (preserve for audit)
    UPDATE users
    SET account_status = 'deleted',
        email_hash = NULL,
        auth_provider_id = NULL,
        updated_at = NOW()
    WHERE user_id = target_user_id;

    RETURN TRUE;
END;
$$ LANGUAGE plpgsql;

-- Scheduled job to permanently delete accounts after 30-day grace period
CREATE OR REPLACE FUNCTION permanent_delete_expired_accounts()
RETURNS INT AS $$
DECLARE
```

```
    deleted_count INT;
BEGIN
    WITH deleted AS (
        DELETE FROM users
        WHERE account_status = 'deleted'
          AND updated_at < NOW() - INTERVAL '30 days'
        RETURNING user_id
    )
    SELECT COUNT(*) INTO deleted_count FROM deleted;

    RETURN deleted_count;
END;
$$ LANGUAGE plpgsql;
```

Retention Policies

```
sql

-- Table retention policies
-- Anonymized analytics data retained indefinitely
-- Personal identifiable data deleted per policy

-- Retention policy configuration
CREATE TABLE data_retention_policies (
    policy_id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    table_name VARCHAR(100) NOT NULL,
    retention_period INTERVAL NOT NULL,
    anonymization_rules JSONB,
    created_at TIMESTAMP NOT NULL DEFAULT NOW()
);

-- Example policies
INSERT INTO data_retention_policies (table_name, retention_period, anonymization_rules) VALUES
('fasting_sessions', INTERVAL '2 years', '{"user_id": "anonymize"}'),
('workout_sessions', INTERVAL '2 years', '{"user_id": "anonymize"}'),
('body_metrics', INTERVAL '1 year', '{"user_id": "anonymize"}'),
('user_posts', INTERVAL '1 year', '{"caption": "redact", "media_urls": "delete"}');
```

5.4 Data Flow Diagram: Fasting Session Lifecycle

```
┌──────────────────────────────────────────────────────────────┐
│                  MOBILE APP                           │
│  User Action: "Start 16-hour fast"                       │
└──────────────────────────┬───────────────────────────────────┘
          │
```

```
         ▼ (HTTPS POST)
┌─────────────────────────────────────────────────────┐
│          API GATEWAY                   │
│ • JWT validation                       │
│ • Rate limiting                        │
│ • Request logging                      │
└──────────────────┬──────────────────────────────────┘
         │
         ▼
┌─────────────────────────────────────────────────────┐
│        FASTING SERVICE                   │
│ POST /api/v1/fasting/sessions/start      │
│ {                                  │
│   "protocol_type": "16-8",              │
│   "timezone": "Europe/London"            │
│ }                                  │
└──────────────────┬──────────────────────────────────┘
         │
         ▼
┌─────────────────────────────────────────────────────┐
│          POSTGRESQL                    │
│ INSERT INTO fasting_sessions             │
│ • session_id generated                 │
│ • started_at = NOW()                   │
│ • scheduled_end_at = NOW() + 16 hours        │
│ • status = 'active'                  │
└──────────────────┬──────────────────────────────────┘
         │
         ├─────────────────────────┐
         ▼         ▼
┌──────────────────────────┐ ┌────────────────────┐
│ NOTIFICATION SERVICE     │ │ ANALYTICS SERVICE     │
│ • Schedule push notification │ │ • Log event:       │
│   for completion time    │ │ "fasting_started"  │
│ • Add to Redis queue     │ │ • User cohort analysis │
└──────────────────────────┘ └────────────────────┘
         │         │
         ▼         ▼
┌──────────────────────────┐ ┌────────────────────┐
│ FIREBASE CLOUD MESSAGING    │ │    CLICKHOUSE     │
│ • Push notification delivered │ │ • Aggregate metrics  │
│   16 hours later     │ │ • Retention analysis  │
└──────────────────────────┘ └────────────────────┘
```

5.5 API Endpoint Specifications (Key Examples)

Endpoint: Start Fasting Session

```
POST /api/v1/fasting/sessions/start
Authorization: Bearer <JWT>

Request Body:
{
  "protocol_type": "16-8",
  "timezone": "Europe/London",
  "custom_duration_hours": null  // Optional for custom protocols
}

Response (201 Created):
{
  "session_id": "550e8400-e29b-41d4-a716-446655440000",
  "user_id": "660e8400-e29b-41d4-a716-446655440001",
  "protocol_type": "16-8",
  "started_at": "2025-12-22T08:00:00Z",
  "scheduled_end_at": "2025-12-23T00:00:00Z",
  "status": "active",
  "hours_remaining": 16.0,
  "estimated_calories_burned": 120
}

Error Responses:
400 Bad Request: Invalid protocol_type
409 Conflict: Active fasting session already exists
429 Too Many Requests: Rate limit exceeded
```

Endpoint: Complete Workout

```
POST /api/v1/workouts/sessions/complete
Authorization: Bearer <JWT>

Request Body:
{
  "session_id": "770e8400-e29b-41d4-a716-446655440000",
  "workout_id": "880e8400-e29b-41d4-a716-446655440002",
  "duration_minutes": 18.5,
  "difficulty_rating": 4,
  "energy_level_before": 3,
  "energy_level_after": 5,
  "completion_percentage": 100,
  "calories_burned": 187,  // Optional: from wearable
  "heart_rate_avg": 145     // Optional: from wearable
}

Response (200 OK):
{
  "session_id": "770e8400-e29b-41d4-a716-446655440000",
  "status": "completed",
  "xp_earned": 50,
  "new_achievements": [
    {
      "achievement_id": "990e8400-e29b-41d4-a716-446655440003",
      "name": "First Workout Complete",
      "xp_bonus": 100
    }
  ],
  "streak_updated": {
    "type": "workout",
    "current_streak_days": 8,
    "longest_streak_days": 12
  },
  "level_up": false,
  "avatar_updated": true
}
```

Endpoint: Get Progress Dashboard

```
GET /api/v1/users/me/dashboard?period=7d
Authorization: Bearer <JWT>

Response (200 OK):
{
 "user": {
  "user_id": "660e8400-e29b-41d4-a716-446655440001",
  "avatar_level": 5,
  "total_xp": 2450,
  "next_level_xp": 3000
 },
 "period": {
  "start_date": "2025-12-15",
  "end_date": "2025-12-22",
  "days": 7
 },
 "fasting_stats": {
  "sessions_started": 7,
  "sessions_completed": 6,
  "adherence_rate": 85.7,
  "average_duration_hours": 16.2,
  "current_streak_days": 6,
  "longest_streak_days": 12
 },
 "workout_stats": {
  "sessions_completed": 5,
  "total_minutes": 87,
  "calories_burned": 735,
  "current_streak_days": 5,
  "favorite_workout_type": "hiit"
 },
 "body_metrics": {
  "weight_change_kg": -0.8,
  "weight_trend": "decreasing",
  "latest_weight_kg": 78.2,
  "latest_recorded_at": "2025-12-22T07:30:00Z"
 },
 "achievements_unlocked": [
  {
   "achievement_id": "990e8400-e29b-41d4-a716-446655440003",
   "name": "Week Warrior",
   "unlocked_at": "2025-12-21T18:00:00Z"
  }
 ],
 "insights": [
  {
      "type": "pattern_recognition",
      "message": "Your workout consistency is highest on Mondays. Consider scheduling important workouts on this day.",
      "confidence": 0.89
    },
    {
      "type": "recommendation",
      "message": "You're 1 workout away from a 7-day streak! Keep it up.",
      "action_required": true
    }
  ]
}
```

5.6 Database Scaling Strategy

Phase 1: MVP (0-10K users)

- Single PostgreSQL instance (RDS db.t3.large)
- TimescaleDB extension enabled
- Read replicas: 1 (for analytics queries)
- Redis single instance for caching

Phase 2: Growth (10K-100K users)

- PostgreSQL vertical scaling (db.m5.xlarge)
- Read replicas: 2-3 (geographic distribution)
- Redis cluster (3 nodes)
- Introduce connection pooling (PgBouncer)
- Table partitioning for high-volume tables

Phase 3: Scale (100K+ users)

- Multi-region PostgreSQL deployment
- Sharding strategy by user_id hash
- Separate database for analytics (ClickHouse)
- ElasticSearch for search workloads
- CDN for static content (workout videos)

Monitoring & Alerts:

- Slow query identification (> 100ms)

- Connection pool exhaustion
- Replication lag monitoring
- Disk space utilization (alert at 80%)
- Error rate thresholds

---

6. Onboarding Flow Prototype: First-Week Habit Formation

6.1 Onboarding Psychology Framework

Behavioral Science Principles Applied:

1. **Commitment Escalation:** Start with micro-commitments, gradually increase
2. **Identity Formation:** Position user as "optimizer" not "dieter"
3. **Self-Efficacy Building:** Early wins create confidence
4. **Habit Stacking:** Attach new behaviors to existing routines
5. **Social Proof:** Demonstrate community success without pressure

6.2 Day-by-Day First Week Experience

Day 0: Onboarding (Covered in Section 3.2)

Goal: Complete profile setup, understand core value proposition
Key Metric: Onboarding completion rate (target: 80%+)

Day 1: First Fast Initiation

Morning (User Wakes Up):

```
┌─────────────────────────────────────────────┐
│         PUSH NOTIFICATION (8:00 AM)         │
│ 🌟 Ready to start your first fast? Your eating window opens │
│ at 12:00 PM today. Tap to begin tracking.   │
└─────────────────────────────────────────────┘
```

User Opens App:

```
┌─────────────────────────────────────────────┐
│         WELCOME BACK SCREEN                 │
│ Good morning, [Name]!                       │
│                                             │
│ Your personalized plan is ready. Let's start your first fast. │
│                                             │
│ Today's Fast: 16 hours                      │
│ Start: 8:00 PM (last night)  ← Already in progress!         │
│ End: 12:00 PM (today)                       │
│                                             │
│ [Timer shows: 4 hours remaining]            │
│                                             │
│ 💡 Tip: Black coffee, tea, and water are encouraged         │
│                                             │
│ [I understand] [What if I'm hungry?]        │
└─────────────────────────────────────────────┘
```

Design Decision: Assume user started fasting from last night's dinner (most natural 16/8 pattern). Don't make them "start" - they're already partway through first fast. This creates instant progress.

Midday (11:00 AM - 1 hour before window opens):

```
┌─────────────────────────────────────────────┐
│       PUSH NOTIFICATION (11:00 AM)          │
│ 🎯 1 hour until your eating window! You're 93% through your │
│ first fast. Great job staying consistent!   │
└─────────────────────────────────────────────┘
```

User Opens App:

```
┌─────────────────────────────────────────────┐
│         FIRST FAST NEARING COMPLETION       │
│                                             │
│ [Large circular timer: 00:58:34 remaining]  │
│                                             │
│ You're almost there! 🎉                     │
│                                             │
│ When your eating window opens:              │
│ ✓ Break your fast mindfully with protein    │
│ ✓ Stay hydrated throughout                  │
│ ✓ No need to overeat - normal portion sizes │
│                                             │
│ Quick question: How are you feeling right now? │
│ [Energized] [Hungry] [Neutral] [Tired]      │
└─────────────────────────────────────────────┘
```

Noon (Window Opens):

```
┌─────────────────────────────────────────────┐
│      PUSH NOTIFICATION (12:00 PM)           │
│ 🎊 Congratulations! You completed your first 16-hour fast! │
│ Your eating window is now open. Tap to see what's next. │
└─────────────────────────────────────────────┘
```

User Opens App:

```
┌─────────────────────────────────────────────┐
│      FIRST MILESTONE CELEBRATION            │
│ 🏆 First Fast Complete! 🏆                  │
│                                             │
│ [Animated confetti effect]                  │
│ [Avatar character celebrates - level up animation] │
│                                             │
│ You earned:                                 │
│ • 100 XP + "First Fast" Achievement         │
│ • Unlocked: Meal logging feature            │
│                                             │
│ Your eating window: 12:00 PM - 8:00 PM      │
│                                             │
│ Optional: Log your first meal to see how UGOKI helps you │
│ optimize nutrition during your eating window. │
│                                             │
│ [Log Meal] [I'll do it later]               │
└─────────────────────────────────────────────┘
```

Evening (6:00 PM):

```
┌─────────────────────────────────────────────────┐
│         PUSH NOTIFICATION (6:00 PM)             │
│ 🏃 Perfect time for your first workout! Your body is fueled │
│ and ready. 15-minute HIIT session recommended.  │
└─────────────────────────────────────────────────┘
```

User Opens App:

```
┌─────────────────────────────────────────────────┐
│          FIRST WORKOUT INVITATION               │
│ Great timing! You've eaten, you're energized.   │
│                                                 │
│ Ready for your first 15-minute HIIT workout?    │
│                                                 │
│ Why now?                                        │
│ • You're within your eating window (fueled)     │
│ • Exercise enhances metabolic benefits of IF    │
│ • Evening workouts improve sleep quality        │
│                                                 │
│ [Start Recommended Workout]                     │
│ [Browse Other Options]                          │
│ [Remind Me Later]                               │
└─────────────────────────────────────────────────┘
```

If User Completes Workout:

```
┌─────────────────────────────────────────────────┐
│         PERFECT DAY ACHIEVED                    │
│ 🌟 PERFECT DAY 🌟                                │
│                                                 │
│ You completed:                                  │
│ ✓ 16-hour fast                                  │
│ ✓ First workout                                 │
│ ✓ Meal logged                                   │
│                                                 │
│ This is how optimizers are made. Tomorrow, let's do it again! │
│                                                 │
│ Bonus: +200 XP (Perfect Day)                    │
│ [View Progress] [Done]                          │
└─────────────────────────────────────────────────┘
```

Day 2: Consistency Building

Morning (8:00 AM):

```
┌─────────────────────────────────────────┐
│        PUSH NOTIFICATION (8:00 AM)       │
│ 🔥 Day 2! Your eating window opens at 12:00 PM. You've got │
│ this. 4 hours to go.                     │
└─────────────────────────────────────────┘
```

User Opens App:

```
┌─────────────────────────────────────────┐
│          DAY 2 DASHBOARD                 │
│ Welcome back, [Name]!                    │
│                                          │
│ Current Fast: 12:47:23 / 16:00:00        │
│ [Progress ring: 80% complete]            │
│                                          │
│ Streak: 🔥 2 days (keep it going!)       │
│                                          │
│ Yesterday's Wins:                        │
│ ✓ Completed 16-hour fast                 │
│ ✓ First workout finished                 │
│                                          │
│ Today's Goals:                           │
│ □ Complete today's fast (3h 12m remaining) │
│ □ Try a different workout (optional)     │
│ □ Log weight (track progress)            │
└─────────────────────────────────────────┘
```

Key Differences from Day 1:

- No lengthy explanations (user understands basics)
- Streak prominently displayed (psychological commitment)
- Optional weight logging introduced (not mandatory)
- Less hand-holding, more autonomy

Evening (7:00 PM):

```
┌─────────────────────────────────────────────┐
│         CONTEXTUAL INSIGHT                  │
│ 💡 Did you know?                            │
│                                             │
│ Users who complete 2 consecutive fasts are 3x more likely │
│ to maintain the habit long-term.            │
│                                             │
│ You're building something sustainable. Keep going! │
│                                             │
│ [Close]                                     │
└─────────────────────────────────────────────┘
```

Day 3: Challenge Introduction

Morning (8:00 AM):

```
┌─────────────────────────────────────────────┐
│         PUSH NOTIFICATION (8:00 AM)         │
│ 🎯 Day 3 Challenge: The "Hump Day" - Studies show day 3 is │
│ the hardest. You're prepared. Let's do this. │
└─────────────────────────────────────────────┘
```

User Opens App:

```
┌─────────────────────────────────────────────┐
│            DAY 3: CHALLENGE DAY             │
│ Morning, [Name]! Today is important.        │
│                                             │
│ Day 3 is typically the hardest for new fasters: │
│ • Your body is still adapting               │
│ • Hunger hormones (ghrelin) peak            │
│ • Motivation can waver                      │
│                                             │
│ But here's the secret:                      │
│ Day 4 gets significantly easier. Your body starts │
│ efficiently using stored energy.            │
│                                             │
│ If you push through today, you've won.      │
│                                             │
│ [Start Today's Fast] [I need support]       │
└─────────────────────────────────────────────┘
```

If User Clicks "I need support":

```
┌─────────────────────────────────────────────┐
│            SUPPORT RESOURCES                │
│ We've got your back. Here's how to make today easier:  │
│                                             │
│ 1. Stay Busy: Hunger comes in waves. Distraction works.   │
│ 2. Hydrate: Often hunger is thirst. Aim for 2L water today. │
│ 3. Quality Sleep: Poor sleep increases hunger hormones.   │
│ 4. Community: 1,247 users completed Day 3 this week.      │
│                                             │
│ Emergency Options:                          │
│ • Shorten today's fast to 14 hours (still beneficial)     │
│ • Join a live "Fasting Q&A" session at 2:00 PM            │
│ • Message your accountability squad         │
│                                             │
│ [I'm ready] [Connect with community]        │
└─────────────────────────────────────────────┘
```

Design Philosophy: Acknowledge difficulty. Users respect honesty. Offer support without enabling early quit. Provide community connection as motivational tool.

Day 4-5: Adaptation & Routine

Morning (8:00 AM):

```
┌─────────────────────────────────────────────┐
│        PUSH NOTIFICATION (8:00 AM)          │
│ ✨ Day 4: The adaptation phase begins. Most users report   │
│ significantly reduced hunger. Notice the difference?      │
└─────────────────────────────────────────────┘
```

User Opens App:

```
┌─────────────────────────────────────────────┐
│           ADAPTATION PHASE                  │
│ [Dashboard view with expanded metrics]      │
│                                             │
│ Streak: 🔥 4 days (86% of users don't reach this!) │
│                                             │
│ Your Progress:                              │
│ • Total fasting hours: 64                   │
│ • Workouts completed: 3                     │
│ • Weight trend: -0.6 kg ↓                   │
│                                             │
│ New Unlocked:                               │
│ • Meal planner (weekly view)                │
│ • Community feed access                     │
│ • Custom protocol (advanced)                │
│                                             │
│ [Continue] [Explore New Features]           │
└─────────────────────────────────────────────┘
```

Gradual Feature Introduction:

- Days 1-3: Core features only (reduce cognitive load)
- Days 4-5: Unlock "nice-to-have" features (reward progression)
- Days 6-7: Full platform access

Day 6: Social Connection

Morning (8:00 AM):

```
┌─────────────────────────────────────────────┐
│        PUSH NOTIFICATION (8:00 AM)          │
│ 🤝 Day 6: You're not alone. 1,247 people started their fast │
│ at the same time as you today. Connect with your tribe. │
└─────────────────────────────────────────────┘
```

User Opens App:

```
┌──────────────────────────────────────────────────────────────┐
│             COMMUNITY INVITATION                             │
│ You've proven you can do this alone. But why should you?     │
│                                                              │
│ UGOKI Community:                                             │
│ • Share your progress (optional)                             │
│ • Join accountability squads (4-8 people)                    │
│ • Follow optimizers with similar goals                       │
│                                                              │
│ Featured Squad:                                              │
│ "Early Morning Warriors" - 6 members, avg streak: 23 days    │
│ [Request to Join]                                            │
│                                                              │
│ Or: [Browse All Squads] [Create Private Squad] [Skip]        │
└──────────────────────────────────────────────────────────────┘
```

Design Decision: Introduce social features after habits are forming (Day 6), not immediately. Users need to prove to themselves they can succeed before joining community.

Day 7: First Week Celebration & Future Projection

Morning (8:00 AM):

```
┌──────────────────────────────────────────────────────────────┐
│         PUSH NOTIFICATION (8:00 AM)                          │
│ 🎊 FINAL DAY OF WEEK 1! Complete today's fast to unlock your │
│ personalized 30-day optimization plan. You're incredible.    │
└──────────────────────────────────────────────────────────────┘
```

Upon Completing Day 7 Fast:

```
┌─────────────────────────────────────────────┐
│        WEEK 1 COMPLETION CELEBRATION         │
│ 🏆 YOU DID IT! 🏆                            │
│                                              │
│ [Elaborate animation: Avatar evolves to Level 3] │
│                                              │
│ Your First Week Stats:                       │
│ • Fasts completed: 7/7 (100% adherence) 🔥   │
│ • Workouts: 5                                │
│ • Total fasting hours: 112                   │
│ • Weight change: -1.2 kg                     │
│ • XP earned: 1,450                           │
│                                              │
│ Achievements Unlocked:                       │
│ 🏅 Week Warrior (+500 XP)                    │
│ 🏅 Perfect Week (+1000 XP)                   │
│ 🏅 Consistency Champion (+200 XP)            │
│                                              │
│ [Continue] [Share My Week] [See Full Report] │
└─────────────────────────────────────────────┘
```

Next Screen:

```
┌─────────────────────────────────────────────┐
│        YOUR PERSONALIZED 30-DAY PLAN         │
│ Based on your first week, here's your optimized path: │
│                                              │
│ Week 2-3: Intensity Building                 │
│ • Increase workout difficulty                │
│ • Experiment with extended fasts (18-20h, optional) │
│ • Join 2 community challenges                │
│                                              │
│ Week 4: Assessment & Adaptation              │
│ • Body composition review                    │
│ • Protocol optimization based on your data   │
│ • Set Month 2 goals                          │
│                                              │
│ Projected Outcomes (30 days):                │
│ • Weight: -3.5 to -4.2 kg                    │
│ • Energy levels: +35% increase               │
│ • Metabolic adaptation: Complete             │
│                                              │
│ [Lock In My Plan] [Customize]                │
└─────────────────────────────────────────────┘
```

6.3 Onboarding Retention Mechanisms

Micro-Commitments Ladder

```
Day 1: Just complete one fast (easy)
Day 2: Do it one more time (manageable)
Day 3: Push through the challenge (difficult but supported)
Day 4-5: Notice it's getting easier (self-efficacy boost)
Day 6: Join community (social commitment)
Day 7: Complete the week (major milestone)
```

Escalating Investment:

- Time invested (7 days of activity)
- Identity formation ("I'm an optimizer")
- Social connections (squad membership)
- Progress visible (avatar evolution, weight change)
- Sunk cost (don't want to lose streak)

Friction Reduction Strategy

Eliminated Friction Points:

Friction	Solution
"When should I start?"	Pre-populate first fast as already in progress
"Am I doing it right?"	Contextual tips at decision points
"What if I mess up?"	Streak freeze tokens (forgiveness mechanism)
"Is this working?"	Weekly metrics summary with trends
"I'm alone in this"	Gradual community introduction

Habit Formation Triggers

Automatic Trigger System:

```
Time-based triggers:
- 8:00 AM: Morning motivation
- 11:00 AM: Pre-window opening reminder
- 12:00 PM: Window opens celebration
- 6:00 PM: Workout invitation
- 8:00 PM: Window closing reminder

Event-based triggers:
- Fast completed → Celebration + next step
- Workout finished → XP reward + share prompt
- Milestone reached → Achievement unlock + community post
- Streak broken → Support resources + recovery plan

Context-based triggers:
- Location: Gym nearby → Workout suggestion
- Time of day: Evening → Wind-down meditation
- Weather: Sunny → Outdoor workout option
```

6.4 Week 1 Success Metrics

Measurement Framework:

Metric	Target	Measurement Point
Onboarding completion rate	80%	End of Day 0
Day 1 fast completion	85%	End of Day 1
Day 3 retention	70%	Morning of Day 4
Day 7 retention	60%	End of Week 1
Perfect Week achievement	40%	Users with 7/7 fasts
Workout engagement	50%	Users completing ≥1 workout
Social feature adoption	30%	Users joining squads/following others
NPS after Week 1	≥ 40	In-app survey

Intervention Triggers:

```
If Day 3 retention < 70%:
→ Implement more aggressive support messaging
→ Increase streak freeze availability
→ Add live Q&A sessions

If workout engagement < 50%:
→ Simplify workout discovery
→ Add 5-minute "micro-workout" options
→ Better timing recommendations

If social adoption < 30%:
→ Earlier community introduction
→ Auto-match users to squads
→ Highlight social proof more prominently
```

---

7. Implementation Roadmap & Timeline

7.1 Pre-Development Phase (Weeks 1-4)

Week 1-2: Foundation

- □ Finalize MVP feature scope (this document)
- □ User research: Interview scheduling & execution
- □ Design system creation (Figma)
- □ Technology stack approval & procurement

Week 3-4: Preparation

- □ User research analysis & insights report
- □ High-fidelity prototype development
- □ Usability testing execution
- □ Development environment setup
- □ Third-party service contracts (Stripe, Nutritionix, Firebase)

7.2 Development Sprints (Weeks 5-16)

Sprint 1-2 (Weeks 5-6): Core Infrastructure

- □ Database schema implementation
- □ API gateway configuration
- □ Authentication service (OAuth + anonymous)
- □ User service (profiles, settings)
- □ CI/CD pipeline establishment

- □ Monitoring & logging setup (Sentry, DataDog)

Sprint 3-4 (Weeks 7-8): Fasting Core

- □ Fasting timer service
- □ TimescaleDB time-series integration
- □ Push notification service
- □ Fasting session CRUD APIs
- □ Mobile app: Timer UI
- □ Mobile app: Onboarding flow (first 3 steps)

Sprint 5-6 (Weeks 9-10): Workout System

- □ Workout library database population
- □ Video hosting setup (S3 + CloudFront)
- □ Workout service APIs
- □ Mobile app: Workout player
- □ Mobile app: Workout library browsing
- □ Workout session tracking

Sprint 7-8 (Weeks 11-12): Progress & Nutrition

- □ Progress dashboard APIs
- □ Body metrics service
- □ Nutritionix API integration
- □ Basic meal logging
- □ Mobile app: Dashboard UI
- □ Mobile app: Meal logging UI

Sprint 9-10 (Weeks 13-14): Gamification

- □ Achievement system
- □ Streak calculation (continuous aggregates)
- □ XP & leveling mechanics
- □ Avatar progression system
- □ Mobile app: Gamification UI
- □ Celebration animations

Sprint 11-12 (Weeks 15-16): Testing & Polish

- □ End-to-end testing
- □ Performance optimization
- □ Security audit
- □ GDPR compliance review
- □ Beta testing with 50-100 users

□ Bug fixing & refinement

7.3 Launch Phase (Weeks 17-20)

Week 17: Pre-Launch

□ App Store & Google Play submission

□ Landing page live (waitlist → app store links)

□ Marketing materials finalization

□ Customer support setup (Intercom)

□ Analytics dashboard configuration

Week 18: Soft Launch

□ Release to limited audience (UK only)

□ Monitor for critical bugs

□ Gather initial feedback

□ Hot-fix deployment if needed

Week 19-20: Public Launch

□ Full public availability

□ Marketing campaign activation

□ PR outreach (fitness blogs, wellness media)

□ Influencer partnerships

□ Community management begins

---

8. Risk Mitigation & Contingency Planning

8.1 Technical Risks

Risk	Mitigation	Contingency
Wearable integration delays	Abstract behind adapter layer, phase post-MVP	Launch without wearables, add in v1.1
Video hosting costs exceed budget	Compress videos, use adaptive bitrate	Start with YouTube Private embedding
Database performance issues	Load testing in Sprint 11-12	Scale vertically, add read replicas
App Store rejection	Follow guidelines strictly, pre-submission review	Address feedback, resubmit within 48h

8.2 Product Risks

Risk	Mitigation	Contingency
IF-HIIT positioning doesn't resonate	Validate in user research (Phase 4.3)	Pivot to standalone IF or HIIT positioning
Low Week 1 retention	Implement retention metrics from Day 1	Increase onboarding support, add coaching
Feature scope creep	Strict MoSCoW adherence	Cut "Could Have" features aggressively
User acquisition cost too high	Organic growth focus (referrals, community)	Delay paid marketing, build waitlist

8.3 Compliance Risks

Risk	Mitigation	Contingency
GDPR violations	Legal review at Sprint 11, privacy-by-design	Hire data protection officer, fix immediately
Medical device classification	Avoid diagnostic language, position as lifestyle app	Consult regulatory expert, adjust messaging
Content moderation issues	AI-assisted moderation + human review	Temporary manual review, hire moderators

---

9. Success Criteria & KPIs

9.1 Launch Success Metrics (First 30 Days)

KPI	Target	Measurement
App downloads	5,000+	App Store + Google Play analytics
Onboarding completion	80%+	Firebase Analytics events
Day 7 retention	60%+	Cohort analysis
Perfect Week achievers	40%+	Achievement unlock data

KPI	Target	Measurement
Paid conversion rate	5%+	Stripe dashboard
NPS score	≥ 40	In-app survey
Critical bugs	< 5 per 1000 users	Sentry error tracking
App Store rating	≥ 4.3/5	App Store Connect

9.2 Long-Term Success Indicators (6 Months)

- **Monthly Active Users (MAU):** 15,000+
- **Churn rate:** < 10% monthly
- **Lifetime Value (LTV):** ≥ £120 per user
- **Customer Acquisition Cost (CAC):** < £20
- **LTV:CAC ratio:** ≥ 6:1
- **Organic growth rate:** 40%+ of new users from referrals
- **Community engagement:** 30%+ of users in squads

---

10. Next Actions & Ownership

10.1 Immediate Next Steps (Week 1)

Action	Owner	Deadline
Approve technology stack	Technical Lead	Day 3
Finalize MVP feature scope	Product Manager	Day 5
User research participant recruitment	UX Researcher	Day 7
Design system kickoff	Design Lead	Day 7

10.2 Approval Gates

Gate 1: User Research Complete (Week 4)

☐ Research insights report approved
☐ Feature prioritization validated
☐ Value proposition messaging confirmed

Decision: Proceed to development or pivot

Gate 2: MVP Build Complete (Week 16)

□ All MVP features functional

□ Beta testing successful

□ Performance benchmarks met

Decision: Submit to app stores or extend testing

Gate 3: Launch Readiness (Week 17)

□ App Store approval received

□ Marketing materials ready

□ Support infrastructure live

Decision: Soft launch or delay

---

11. Conclusion

This implementation plan provides a comprehensive roadmap from concept to MVP launch for UGOKI, grounded in user-centric design, privacy-first architecture, and behavioral science principles.

Key Differentiators:

1. **IF-HIIT Integration:** Unique market positioning validated through user research
2. **Privacy-by-Design:** GDPR compliance from day one, not retrofitted
3. **Gamified Habit Formation:** Avatar progression system as retention driver
4. **User-First Onboarding:** Week 1 experience optimized for habit formation

Critical Success Factors:

- Ruthless MVP scope discipline (resist feature creep)
- User research validation before significant development investment
- Week 1 retention optimization (60% target)
- Community feature adoption (30% target)

Timeline Summary:

- **Weeks 1-4:** User research & validation
- **Weeks 5-16:** Development sprints
- **Weeks 17-20:** Launch & stabilization

- **Total:** ~20 weeks to public availability

This plan positions UGOKI for a successful launch in the competitive wellness market by delivering genuine value to busy professionals seeking sustainable human optimization.

Document Status: Ready for review and approval
Next Review: Post user research completion (Week 4)
Version Control: Track changes via Git repository