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CS 3714

Project 3A – Android MVP Project Proposal

FitTrack Pro: Personal Fitness Companion

Executive Summary

FitTrack Pro is a simple fitness tracking Android application for workout logging, progress monitoring, and motivation. The app addresses inconsistent fitness routines by providing easy workout tracking and progress visualization with offline-first architecture.

Problem: 80% of people quit fitness routines within six months due to lack of proper tracking and motivation systems. Additionally, 73% of gym memberships go unused due to poor engagement tools.

Solution: Simple workout logging, basic progress charts, and motivational badges with offline Room database storage. The app focuses on core functionality without overwhelming complexity.

Market: $4.4 billion fitness app market with significant opportunity for user-friendly tracking solutions that prioritize simplicity over feature complexity.

Problem Identification & Solution

Problem Description

Modern fitness enthusiasts face several key challenges:

- Lack of Structure: 67% exercise without tracking progress, leading to inconsistent results
- Poor Tracking: Traditional methods (pen and paper, basic apps) fail to provide clear insights
- Motivation Decline: Without visible progress and achievements, motivation decreases over time
- Complexity: Most fitness apps are too complex for basic tracking needs, overwhelming users

Our Solution

FitTrack Pro addresses these challenges through:

- Simple Logging: Pre-defined workout templates with easy data entry optimized for gym use
- Progress Tracking: Weight and frequency charts with visual feedback and trend analysis
- Motivation: Achievement badges and streak counters that celebrate consistency milestones
- Offline Storage: Complete functionality using Room database without internet dependency
- Clean Interface: Focused on core functionality without unnecessary complexity

Real-World Impact

The app provides immediate value by helping users maintain fitness consistency, track meaningful progress, and build sustainable workout habits through simple, reliable technology.

Target Users & User Personas

Primary User: Sarah - Busy Professional (Age 28)

Background: Works 50+ hours/week, gym member for 2 years but struggles with consistency Goals: Track workouts consistently, see progress over time, maintain motivation during busy periods Pain Points: Forgets workout details, lacks structured approach, existing apps too time-consuming Journey: Downloads app → Sets up profile → Logs workouts → Views progress → Maintains streaks

Secondary User: Mike - Fitness Enthusiast (Age 22)

Background: Regular gym-goer, college student, limited budget for premium apps Goals: Track detailed workout data, stay motivated, see improvements, optimize performance Pain Points: Needs better tracking tools, wants to break through plateaus, lacks consistency feedback

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Use Cases & User Stories

Use Case 1: Workout Logging

Primary Actor: Fitness enthusiast wanting to track workout progress Flow: User selects workout template → Enters sets/reps/weight → System saves to database → Progress updates Acceptance Criteria:

- Templates load <2 seconds
- Intuitive forms for quick gym-floor data entry
- Local data persistence using Room database
- Immediate progress feedback after workout completion

Use Case 2: Progress Viewing

Primary Actor: User monitoring fitness progress over time Flow: User opens progress screen → Views charts and history → Sees badges and streaks Acceptance Criteria:

- Charts display <3 seconds
- 30-day workout history with clear visualization
- Milestone recognition through achievement system
- Export capability for personal records

Use Case 3: Motivation & Goal Setting

Primary Actor: User seeking consistent workout motivation Flow: User sets fitness goals → System tracks progress → Earns badges → Celebrates milestones Acceptance Criteria:

- Goal setting interface is simple and clear
- Achievement notifications are timely and meaningful
- Streak tracking encourages daily consistency

Market Analysis & Competition

Direct Competitors Analysis

1. MyFitnessPal

- Strengths: Comprehensive food database, large user base (200M+ users)
- Weaknesses: Complex interface, subscription-heavy ($19.99/month), limited workout focus
- Gap: Poor workout logging experience for strength training

2. Strava

- Strengths: Excellent social features, robust analytics, strong community (100M+ users)
- Weaknesses: Cardio-focused, overwhelming features, complex interface for beginners
- Gap: Limited gym-based workout support

3. Jefit

- Strengths: Extensive exercise library, detailed tracking, free tier available
- Weaknesses: Outdated interface, poor user experience, slow performance
- Gap: Modern design and streamlined user experience

Our Competitive Advantage

- Simplicity: Clean interface without overwhelming features
- Offline-First: No internet required, Room database storage ensures reliability
- Free: Core functionality included, no subscription barriers
- Fast: Optimized for quick gym-floor data entry
- Focused: Essential tracking features without unnecessary complexity

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Core Features & Technical Implementation

Course Topics Integration (7 Topics)

1. Interactions & Activities: MainActivity, WorkoutActivity, ProgressActivity with smooth transitions
2. View Models: MVVM architecture with WorkoutViewModel, ProgressViewModel managing UI state
3. Intents: Navigation between activities, data passing for workout sessions
4. Fragments & RecyclerViews: Fragment navigation, exercise lists, workout history display
5. Databases & Navigation: Room database, Navigation Component, custom dialogs
6. Menus & Swipe Gestures: Options menus, swipe navigation for deleting entries
7. Bottom Navigation: Main app sections navigation with clear user flow

Database Schema (Room Implementation)

Core Entities:

- User: ID, name, email, fitness_level, preferred_workout_type, created_date
- WorkoutTemplate: ID, name, description, category, difficulty_level
- WorkoutSession: ID, user_id, template_id, date, duration, notes
- Exercise: ID, name, description, muscle_group, equipment_needed
- WorkoutEntry: ID, session_id, exercise_id, sets, reps, weight

Relationships: User → WorkoutSession → WorkoutEntry → Exercise

Core Features

- Offline Storage: All data persisted in Room database with no internet dependency
- Progress Charts: Workout frequency and weight progression with trend analysis
- Motivational System: Achievement badges and streak counters for consistency
- Simple UI: Fast data entry optimized for gym use with responsive design

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Implementation Plan

Final Week Timeline (Realistic Scope)

- Days 1-2: Room database setup and core entities implementation
- Days 3-4: Basic UI with fragments and navigation framework
- Days 5-6: Workout logging functionality and data entry forms
- Days 7-9: Progress visualization, achievement system, and comprehensive testing

MVP Scope

Core Features for Implementation:

- Workout logging with pre-built templates
- Basic progress charts and workout history
- Achievement badges and streak tracking
- Complete offline functionality
- User profile management

Features Excluded from MVP (Future Enhancements):

- Advanced social features
- Complex workout planning algorithms
- Exercise video libraries
- Cloud synchronization

Success Metrics

Technical Performance Goals

- All features work without crashes across multiple devices
- Database operations complete <2 seconds for optimal user experience
- UI responsive across different screen sizes and orientations
- Successful integration of 7+ course topics

Academic Learning Objectives

- Room database mastery with proper entity relationships
- MVVM architecture implementation with clean separation of concerns
- Fragment navigation proficiency with proper lifecycle management
- Clean, maintainable code following Android best practices

User Experience Benchmarks

- Workout logging process completes in under 3 minutes
- Progress visualization loads within 3 seconds

- Navigation between sections is intuitive and efficient

Risk Assessment & Mitigation

Technical Implementation Risks

Database Complexity: Risk of overly complex schema affecting performance

- *Mitigation*: Simple, well-defined entity relationships with essential data only

Time Constraints: Ambitious scope may exceed available implementation time

- *Mitigation*: Strict MVP focus, daily progress checkpoints, prepared fallback plan

Integration Challenges: Multiple course topics may create unexpected conflicts

- *Mitigation*: Incremental implementation and testing of each component

Development Process Management

Solutions: Simple schema design, core features only, standard Android components, daily progress checkpoints, focus on functionality over visual polish

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Conclusion

FitTrack Pro represents a focused, achievable Android MVP that demonstrates mastery of core course concepts while solving real fitness tracking problems. By concentrating on essential features—workout logging, progress tracking, and local data persistence—this project is realistic for final week implementation in a 6-week summer course.

The app's technical implementation showcases proficiency in Room database management, Fragment navigation, RecyclerView implementation, and MVVM architecture. The simplified scope ensures successful completion while maintaining educational value and practical utility.

This MVP serves as a solid foundation that provides immediate value through reliable workout tracking with persistent local storage, demonstrating both technical competency and user-centered design principles essential for modern Android development.