PHÂN TÍCH KỸ THUẬT & BÁO GIÁ GIA CÔNG (TỪ ZERO - 8 TUẦN FIX)

Garden Mind Wellness Application

I. TỔNG QUAN DỰ ÁN

1.1 Mô tả dự án

Garden Mind là một ứng dụng sức khỏe tinh thần (mental wellness) giúp người dùng phát triển nhận thức bản thân thông qua các phép trực quan hóa đẹp mắt. Ứng dụng kết hợp giữa:

- **Trực quan hóa dữ liệu**: Bản đồ neural (neural map) và khu vườn tâm trí (mind garden)
- **Đánh giá tâm lý**: Các bài test chuẩn hóa (GAD-7, PHQ-9, v.v.)
- **Journaling**: Nhật ký hàng ngày với theo dõi tâm trạng
- **Hỗ trợ đồng đẳng**: Kết nối ẩn danh qua QR code

1.2 Timeline Constraint

IMPORTANT: Timeline cố định là **8 TUẦN** - không thể kéo dài. Điều này yêu cầu:

- Team size lớn hơn (3-4 developers)
- Parallel development tối đa
- Strict scope control
- Weekly delivery milestones
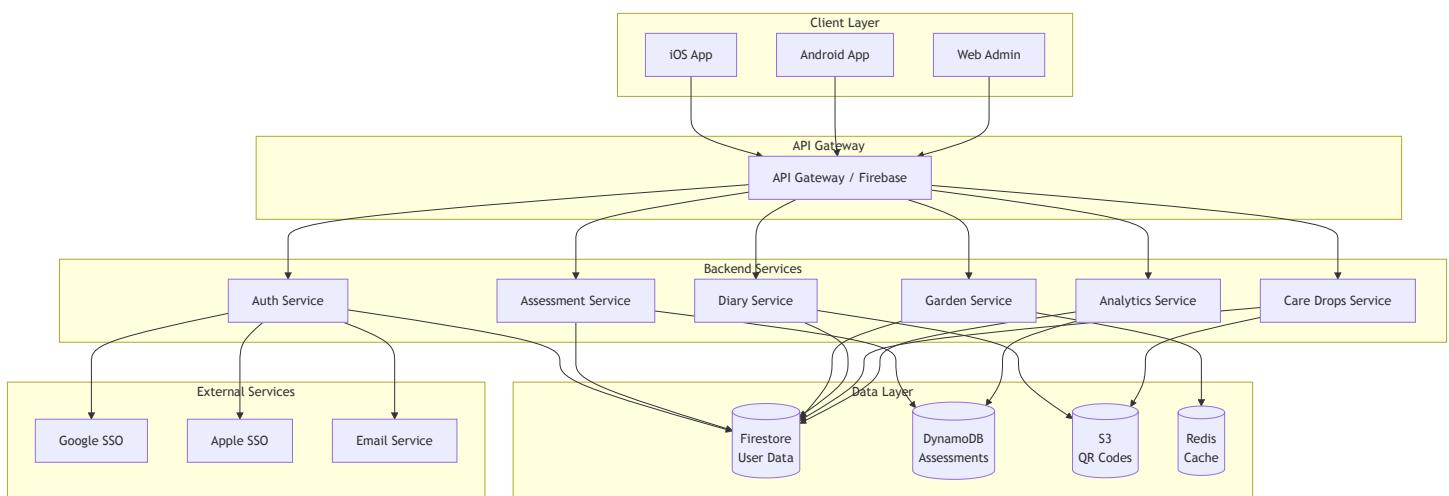
1.3 Tech Stack

Layer	Technology	Lý do chọn
Frontend	Flutter 3.19+	Cross-platform, performance, rich UI
State Management	Riverpod 2.5+	Reactive, type-safe, testable
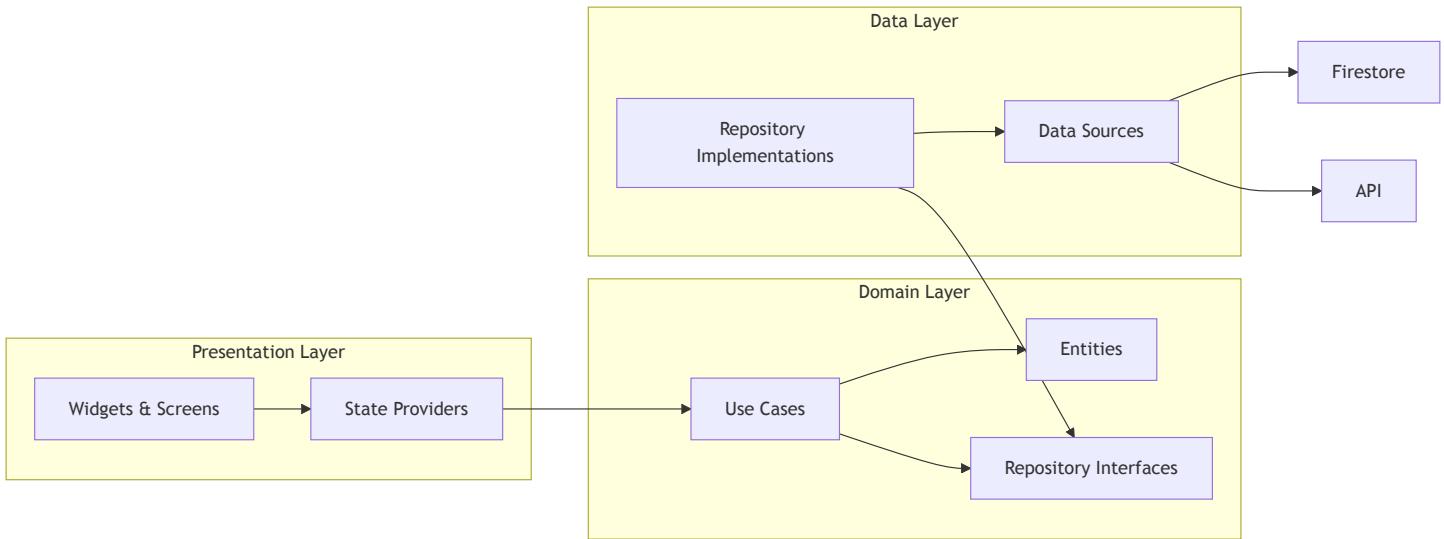
| Layer	Technology	Lý do chọn
Navigation	Go Router 14+	Declarative, deep linking support
Backend	Firebase / Node.js	Serverless, scalable, real-time
Database	Firestore + DynamoDB	NoSQL, real-time sync, HIPAA-ready
Auth	Firebase Auth	SSO support, secure, HIPAA-compliant
Admin Panel	Flutter Web / React	Code reuse, fast development
DevOps	GitHub Actions	CI/CD, automated testing

II. ARCHITECTURE DIAGRAMS

2.1 System Architecture Overview
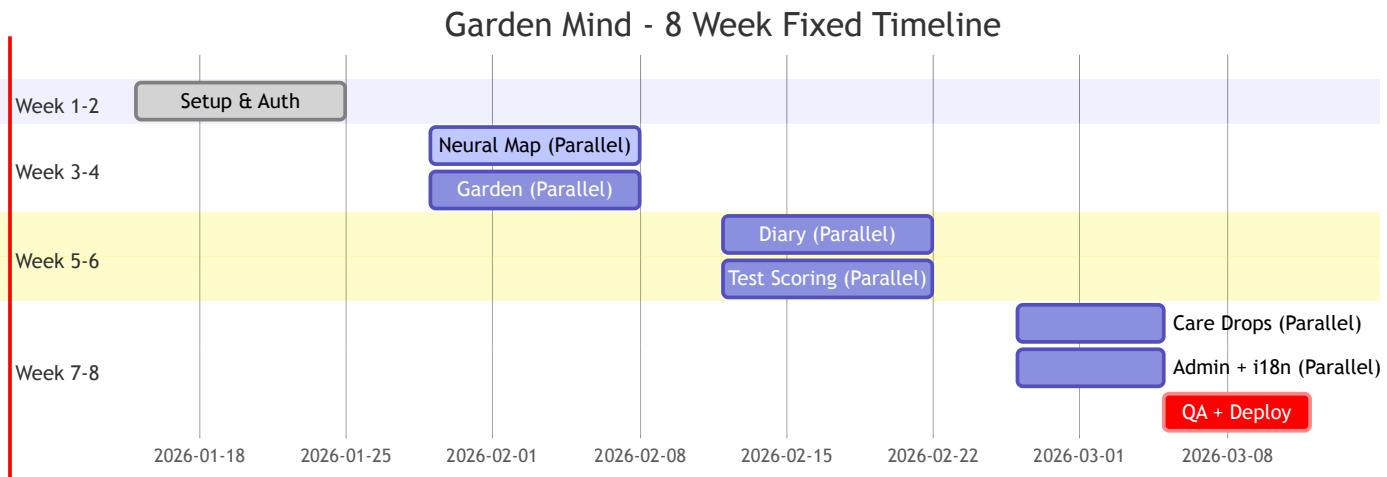
## 2.2 Application Architecture (Clean Architecture)

III. 8-WEEK FIXED TIMELINE WORKFLOW

3.1 Development Timeline (Gantt)
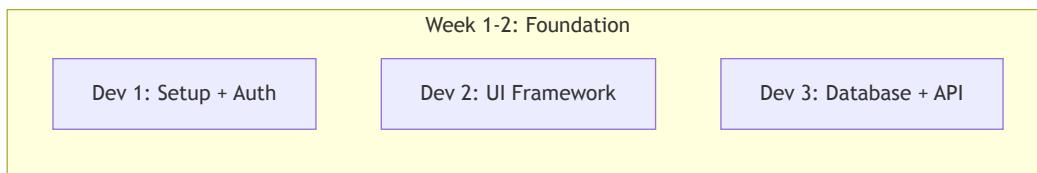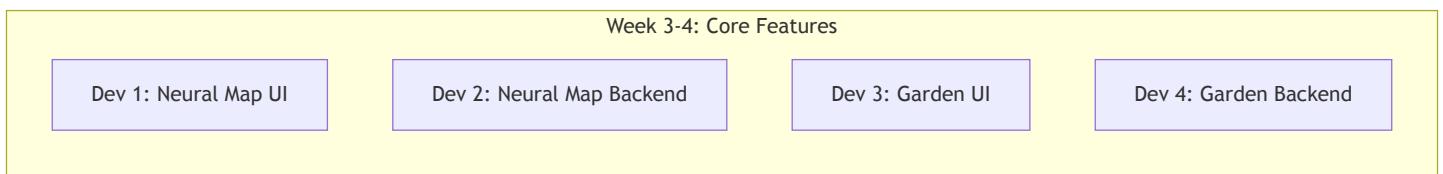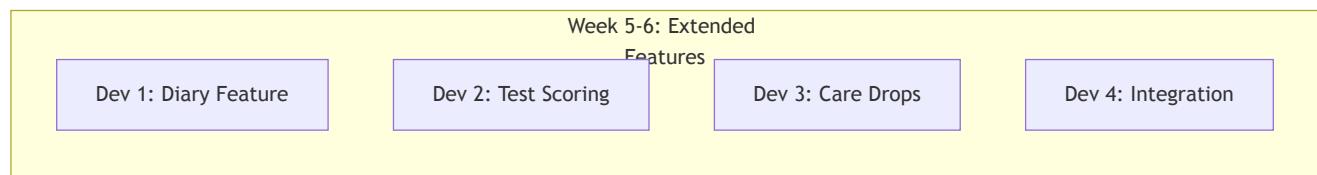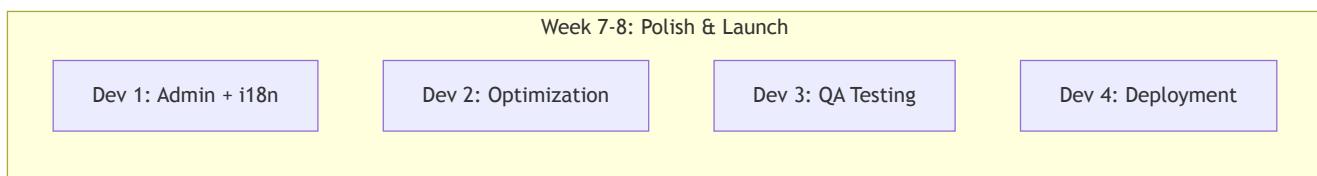

3.2 Weekly Milestones

Week	Milestone	Deliverables	Team Size
1	Project Kickoff	Setup, Auth, DB schema	3 devs
2	Foundation Complete	UI framework, API base	3 devs
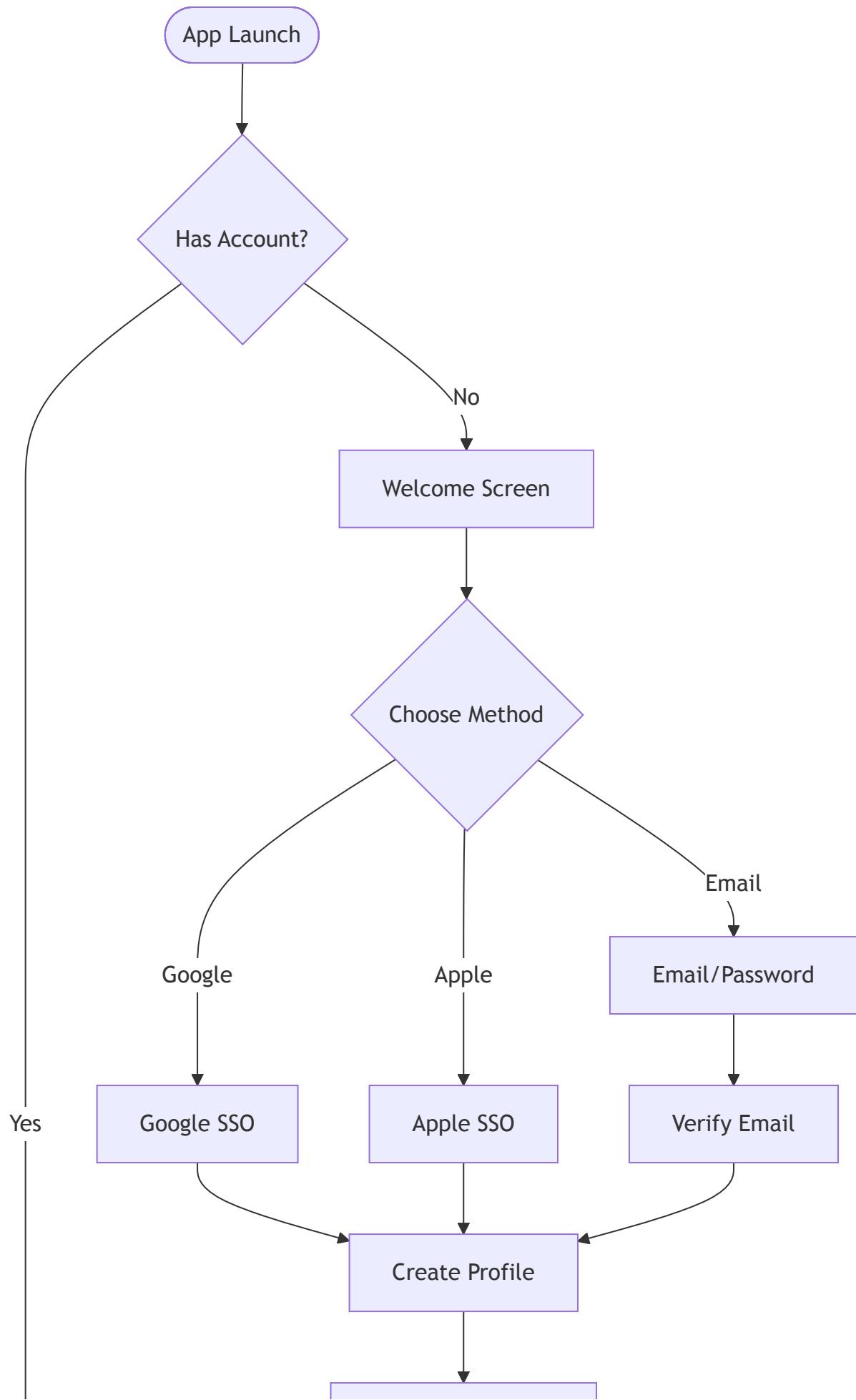
Week	Milestone	Deliverables	Team Size
3	Neural Map Alpha	35 nodes, assessment flow	3-4 devs
4	Garden Alpha	31 flowers, check-in	3-4 devs
5	Diary + Test Beta	Diary, test scoring	4 devs
6	Care Drops Beta	QR matching, chat	4 devs
7	Polish Phase	Admin, i18n, optimization	4 devs
8	Launch	QA, TestFlight, deployment	4 devs
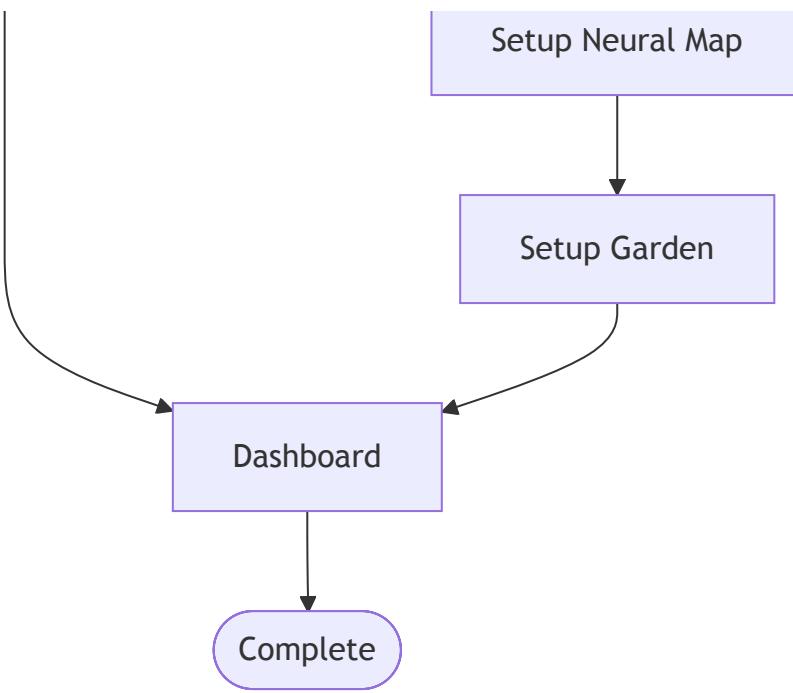
3.3 Parallel Development Strategy

Week 7-8: Polish & Launch

Dev 1: Admin + i18n   Dev 2: Optimization   Dev 3: QA Testing   Dev 4: Deployment

Week 5-6: Extended Features

Dev 1: Diary Feature   Dev 2: Test Scoring   Dev 3: Care Drops   Dev 4: Integration

Week 3-4: Core Features

Dev 1: Neural Map UI   Dev 2: Neural Map Backend   Dev 3: Garden UI   Dev 4: Garden Backend

Week 1-2: Foundation

Dev 1: Setup + Auth   Dev 2: UI Framework   Dev 3: Database + API

IV. WORKFLOW DIAGRAMS

4.1 User Onboarding Flow

```mermaid
flowchart TD
    A([App Launch]) --> B{Has Account?}
    B -->|No| C[Welcome Screen]
    B -->|Yes| Z
    C --> D{Choose Method}
    D -->|Google| E[Google SSO]
    D -->|Apple| F[Apple SSO]
    D -->|Email| G[Email/Password]
    G --> H[Verify Email]
    E --> I[Create Profile]
    F --> I
    H --> I
    I --> J
```

App Launch

Has Account?

No

Welcome Screen

Choose Method

Google

Apple

Email

Email/Password

Yes

Google SSO

Apple SSO

Verify Email

Create Profile

```mermaid
flowchart TD
    A[Setup Neural Map] --> B[Setup Garden]
    B --> C[Dashboard]
    C --> D(Complete)
```

4.2 Assessment Flow

```mermaid
flowchart TD
    A([Select Assessment]) --> B{Which Test?}
    B -->|GAD-7| C[GAD-7<br/>7 questions]
    B -->|PHQ-9| D[PHQ-9<br/>9 questions]
    B -->|PSS-10| E[PSS-10<br/>10 questions]
    B -->|PSQI| F[PSQI<br/>19 questions]
    B -->|MAAS| G[MAAS<br/>15 questions]
    C --> H[Display Questions]
    D --> H
    E --> H
    F --> H
    G --> H
    H --> I{Answered All?}
    I -->|No| H
    I -->|Yes| J[Calculate Score]
    J --> K[Display Result]
    K --> L[Update Neural Map]
    K --> M{Score Threshold}
    L --> N[Save to History]
    M -->|Normal| O
    M -->|High| P[Show Resources]
```

Select Assessment

Which Test?

GAD-7 → GAD-7 / 7 questions

PHQ-9 → PHQ-9 / 9 questions

PSS-10 → PSS-10 / 10 questions

PSQI → PSQI / 19 questions

MAAS → MAAS / 15 questions

Display Questions

Answered All?
- No
- Yes

Calculate Score

Display Result

Update Neural Map

Score Threshold
- Normal
- High

Save to History

Show Resources

Complete

V. DETAILED TASK BREAKDOWN (8 WEEKS)

WEEK 1-2: FOUNDATION

Week 1: Setup & Infrastructure

Task 1.1: Project Setup

- Flutter project structure
- CI/CD pipeline
- Environment configuration
- **Assign**: Dev 1 | **Effort**: 8-10 giờ

Task 1.2: Design System

- Color palette, typography
- Base components
- Theme system
- **Assign**: Dev 2 | **Effort**: 16-20 giờ

Task 1.3: Firebase & Database

- Firebase setup
- Database schema
- Security rules
- **Assign**: Dev 3 | **Effort**: 12-16 giờ

Task 1.4: Authentication

- Google SSO, Apple SSO
- Email/password
- Session management
- **Assign**: Dev 1 | **Effort**: 16-20 giờ

Task 1.5: API Gateway

- REST API structure
- Error handling
- **Assign**: Dev 3 | **Effort**: 10-12 giờ

Week 1 Total: 62-78 giờ

Week 2: UI Framework & Base Features

Task 2.1: Navigation & Routing

- Go Router setup
- Route guards
- **Assign**: Dev 1 | **Effort**: 6-8 giờ

Task 2.2: State Management

- Riverpod providers
- State patterns
- **Assign**: Dev 2 | **Effort**: 8-10 giờ

Task 2.3: Base Screens

- Home, Settings, Profile
- Loading/error states
- **Assign**: Dev 2 | **Effort**: 12-16 giờ

Task 2.4: Data Models

- User, Assessment, Garden models
- Repository interfaces
- **Assign**: Dev 3 | **Effort**: 10-12 giờ

Week 2 Total: 36-46 giờ

Week 1-2 Combined: 98-124 giờ

WEEK 3-4: CORE FEATURES (PARALLEL)

Week 3-4: Neural Map (Dev 1 + Dev 2)

Task N1: Neural Map Backend

- Assessment data models
- Scoring engine (5 algorithms)
- Neural state management
- **Assign**: Dev 2 | **Effort**: 24-30 giờ

Task N2: Neural Map UI

- 35-node visualization
- Custom painter
- Animations
- Touch interaction
- **Assign**: Dev 1 | **Effort**: 28-35 giờ

Task N3: Assessment Flow

- Question screens
- Answer selection
- Results display
- History list
- **Assign**: Dev 1 | **Effort**: 16-20 giờ

Neural Map Total: 68-85 giờ

Week 3-4: Mind Garden (Dev 3 + Dev 4)

Task G1: Garden Backend

- Flower data models (31 flowers)
- Health calculation
- Streak logic
- **Assign**: Dev 4 | **Effort**: 16-20 giờ

Task G2: Garden UI

- 31-flower visualization
- 8 flower types
- Growth animations
- Atmospheric effects
- **Assign**: Dev 3 | **Effort**: 24-30 giờ

Task G3: Daily Check-in

- Question flow
- Mood picker
- Gamification
- **Assign**: Dev 3 | **Effort**: 12-16 giờ

Garden Total: 52-66 giờ

Week 3-4 Combined: 120-151 giờ

WEEK 5-6: EXTENDED FEATURES (PARALLEL)

Week 5-6: Mini Diary (Dev 1)

Task D1: Diary Backend

- Entry models
- CRUD operations
- Search indexing
- **Assign**: Dev 1 | **Effort**: 12-16 giờ

Task D2: Diary UI

- Entry creation
- Rich text editor
- List & filters
- **Assign**: Dev 1 | **Effort**: 16-20 giờ

Task D3: Garden Integration

- Tap flower → entry
- Mood linkage
- **Assign**: Dev 1 | **Effort**: 6-8 giờ

Diary Total: 34-44 giờ

Week 5-6: Test Scoring (Dev 2)

Task T1: Test Management

- Question bank CRUD

- Assessment config
- **Assign**: Dev 2 | **Effort**: 12-16 giờ

Task T2: Test Taking UI

- Test selection
- Question flow
- Progress tracking
- **Assign**: Dev 2 | **Effort**: 14-18 giờ

Task T3: Results & History

- Score display
- Trends visualization
- **Assign**: Dev 2 | **Effort**: 10-12 giờ

Test Scoring Total: 36-46 giờ

Week 5-6: Care Drops (Dev 3 + Dev 4)

Task C1: QR & Matching Backend

- QR generation/validation
- Anonymous pairing
- **Assign**: Dev 4 | **Effort**: 14-18 giờ

Task C2: Messaging Backend

- Real-time messaging
- Encryption
- **Assign**: Dev 4 | **Effort**: 16-20 giờ

Task C3: Care Drops UI

- QR scanner
- Chat interface
- Privacy controls
- **Assign**: Dev 3 | **Effort**: 22-28 giờ

Care Drops Total: 52-66 giờ

Week 5-6 Combined: 122-156 giờ

WEEK 7: POLISH & INTEGRATION

Task P1: Admin Dashboard

- Assessment management
- User management
- Analytics
- **Assign**: Dev 1 | **Effort**: 20-24 giờ

Task P2: Multi-language

- i18n setup
- EN/VN translations
- **Assign**: Dev 2 | **Effort**: 16-20 giờ

Task P3: Performance Optimization

- Animation optimization
- Memory management
- **Assign**: Dev 3 | **Effort**: 12-16 giờ

Task P4: Integration Testing

- Cross-feature testing
- Bug fixes
- **Assign**: Dev 4 | **Effort**: 16-20 giờ

Week 7 Total: 64-80 giờ

WEEK 8: QA & LAUNCH

Task Q1: Unit Testing

- Business logic tests
- Service tests
- **Assign**: Dev 1 | **Effort**: 12-16 giờ

Task Q2: Integration Testing

- API tests
- Auth flows
- **Assign**: Dev 2 | **Effort**: 10-12 giờ

Task Q3: UI Testing

- Widget tests
- Screenshot tests
- **Assign**: Dev 3 | **Effort**: 10-12 giờ

Task Q4: Deployment

- App Store prep
- Play Store prep
- TestFlight/Play Internal
- **Assign**: Dev 4 | **Effort**: 12-16 giờ

Task Q5: Documentation

- Technical docs
- Admin guide
- Handover
- **Assign**: All | **Effort**: 8-10 giờ

Week 8 Total: 52-66 giờ

VI. EFFORT SUMMARY

6.1 Total Effort by Week

Week	Focus Area	Hours	Team Size
1-2	Foundation	98-124	3 devs
3-4	Neural + Garden	120-151	4 devs
5-6	Diary + Test + Care	122-156	4 devs
7	Polish + Integration	64-80	4 devs

Week	Focus Area	Hours	Team Size
8	QA + Launch	52-66	4 devs
	TOTAL	**456-577 giờ**	**Average: 3.5 devs**

6.2 Effort by Developer Role

Role	Hours	Weeks	Utilization
Senior Flutter Dev 1	130-165	8	81-103%
Senior Flutter Dev 2	126-160	8	79-100%
Mid Flutter Dev 3	114-144	8	71-90%
Mid Flutter/Backend Dev 4	86-108	8	54-68%

VII. BÁO GIÁ CHI TIẾT (8 TUẦN FIX)

7.1 Pricing Calculation

Effort-Based Pricing:

Role	Hours	Rate	Subtotal
Senior Flutter Dev (x2)	256-325	$45	$11,520-14,625
Mid Flutter Dev (x2)	200-252	$35	$7,000-8,820
UI/UX Designer	40-50	$35	$1,400-1,750
QA Engineer	30-40	$25	$750-1,000
DevOps	16-20	$45	$720-900
Project Manager	32-40	$40	$1,280-1,600
		RAW TOTAL	$22,670-28,695

Timeline Premium (+20% cho 8-week crunch):

- Base: $22,670-28,695
- Premium: $4,534-5,739
- **SUBTOTAL**: $27,204-34,434

Discount cho package: 10-15%
FINAL PRICING : $24,500-31,000$

7.2 Pricing Options

Option 1: MVP 8-Week Fast-Track

Scope:

- Tất cả tính năng core
- UI polish standard (không premium)
- Animation cơ bản
- Multi-language EN/VN
- Admin dashboard cơ bản
- QA & deployment

Pricing:

- **Giá:** $24,500-$**28,000**
- Timeline: **8 TUẦN FIX**
- Team: 3-4 developers
- Payment: 30% kickoff, 40% week 4, 30% delivery

Option 2: MVP 8-Week Premium

Scope (Fast-Track +):

- Enhanced UI polish
- Micro-interactions
- Performance optimization
- Advanced admin analytics
- Priority support

Pricing:

- **Giá**: $28,000-31,000$
- Timeline: **8 TUẦN FIX**

- Team: 4 developers
- Payment: 30% kickoff, 40% week 4, 30% delivery

Option 3: Phased Delivery (Still 8 weeks total)

Week 1-4: Core MVP ($14,000-16,000)

- Auth + Neural Map + Garden + Test

Week 5-8: Extended Features ($12,000-15,000)

- Diary + Care Drops + Admin + i18n

TOTAL: $26,000-31,000$

7.3 Payment Schedule (8-Week Timeline)

Milestone	Week	%	Amount (Option 1)	Amount (Option 2)
Deposit	1	30%	$7,350-8,400	$8,400-9,300
Foundation Complete	2	20%	$4,900-5,600	$5,600-6,200
Core Features Complete	4	25%	$6,125-7,000	$7,000-7,750
Launch Ready	8	25%	$6,125-7,000	$7,000-7,750
		100%	**$24,500-28,000**	**$28,000-31,000**

VIII. RỦI RO & PHƯƠNG PHÁP (8 TUẦN)

8.1 Risk Matrix (Tight Timeline)

Risk Assessment Visualization:

```
HIGH PROBABILITY
   ^
   |
   |        [Scope Creep]        [Timeline Slippage]
   |        (HIGH, HIGH)           (HIGH, HIGH)
   |
   |                                      [Quality Issues]
   |                                      (MEDIUM, HIGH)
   |
MID-+-------------------------------------------------> HIGH IMPACT
   |    [Team Burnout]        [Integration Issues]
   |    (MEDIUM, MEDIUM)        (MEDIUM, MEDIUM)
   |
   |
   v
LOW PROBABILITY
```

Risk Scoring:

Risk	Probability (0-1)	Impact (0-1)	Overall Score	Risk Level
Scope Creep	0.8	0.7	0.77	HIGH
Timeline Slippage	0.9	0.8	0.85	CRITICAL
Quality Issues	0.7	0.6	0.65	HIGH
Team Burnout	0.6	0.5	0.55	MEDIUM
Integration Issues	0.7	0.6	0.65	MEDIUM-HIGH

Calculation: Overall = (Probability × 0.6) + (Impact × 0.4)

8.2 Mitigation Strategies

| Rủi ro	Probability	Impact	Mitigation
Timeline slippage	HIGH	HIGH	Strict scope control, daily standups, buffer time in Week 8
Quality issues	MEDIUM	HIGH	Automated testing, code reviews, QA dedicated Week 8
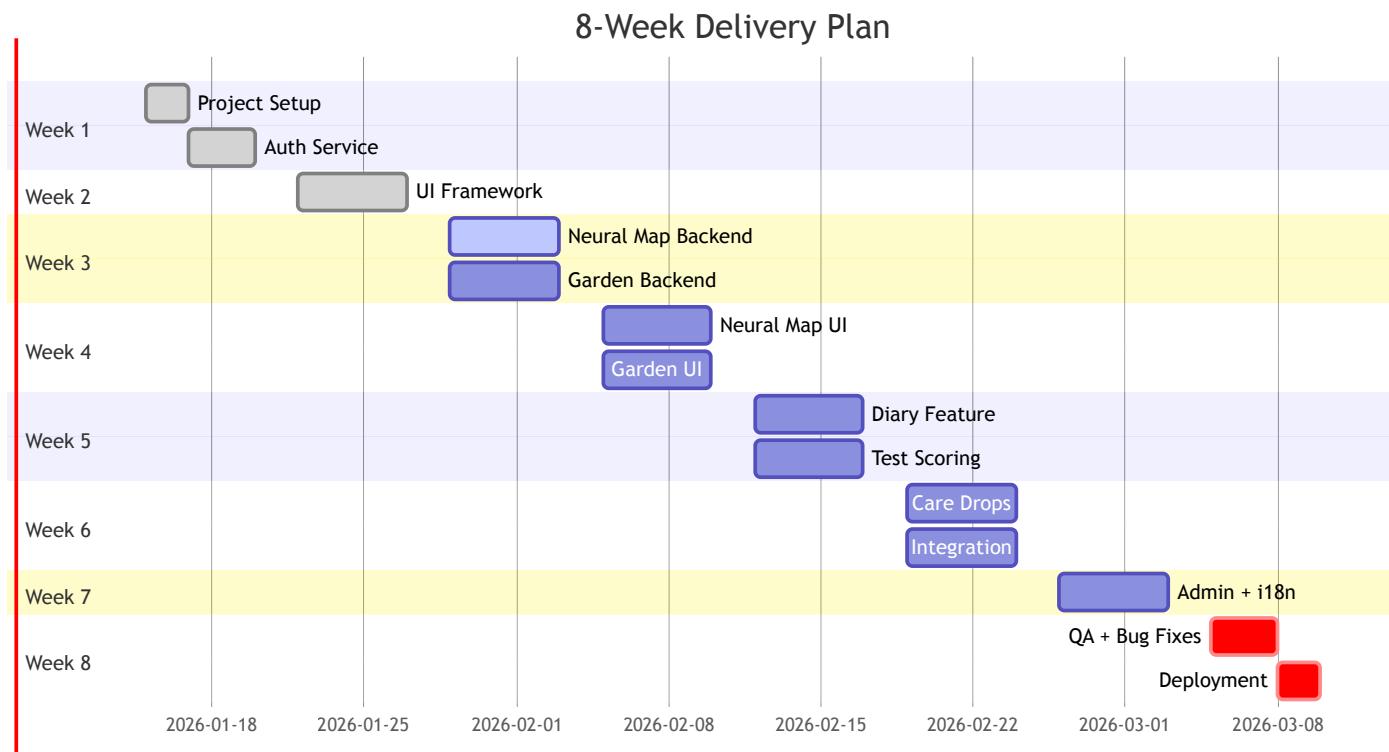
Rủi ro	Probability	Impact	Mitigation
Scope creep	HIGH	HIGH	Change request process, any addition replaces something
Team burnout	MEDIUM	MEDIUM	4 devs to share load, no overtime expectation
Integration issues	MEDIUM	MEDIUM	Weekly integration, continuous deployment

## 8.3 Success Factors for 8-Week Delivery
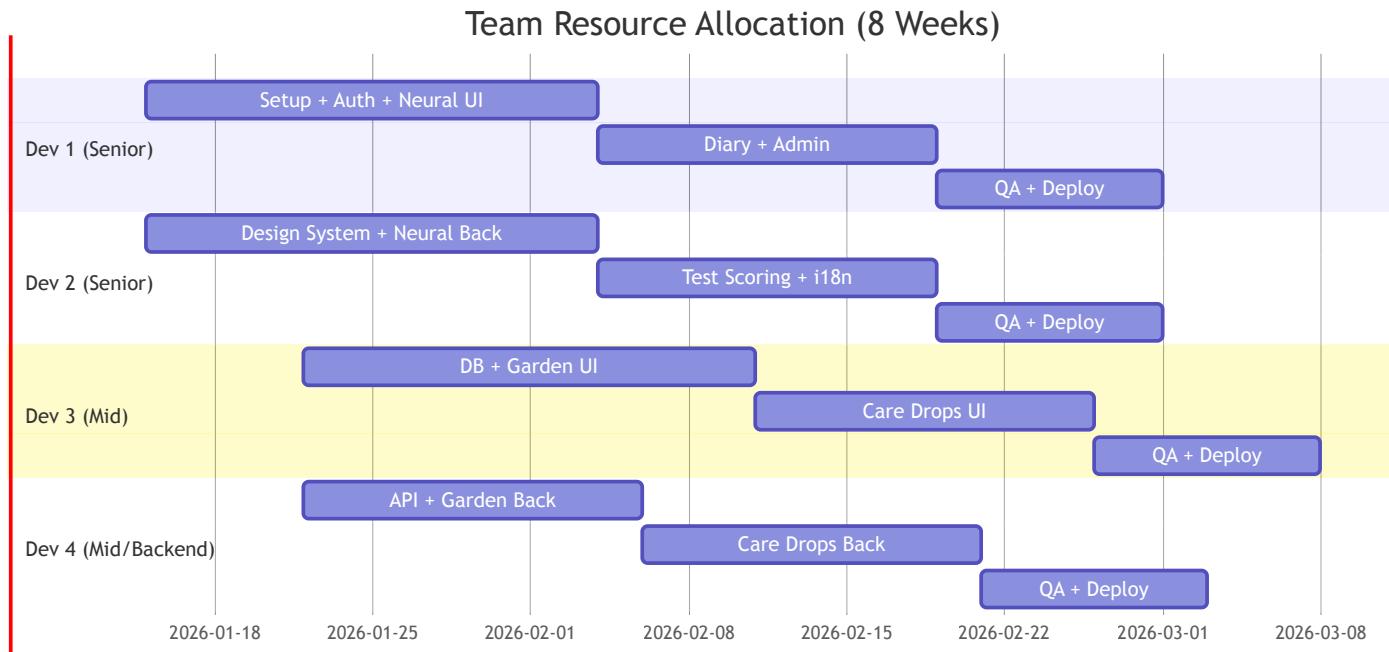
1. **Scope Frozen**: No new features after Week 1
2. **Parallel Development**: 3-4 devs working simultaneously
3. **Daily Communication**: Standups + Slack
4. **Weekly Demos**: Every Friday demo
5. **QA From Week 3**: Testing starts early, not Week 8
6. **Cut Scope If Needed**: Care Drops can move to Phase 2 if timeline at risk

IX. TIMELINE VISUALIZATION

9.1 Week-by-Week Breakdown

8-Week Delivery Plan

Week 1	Project Setup Auth Service
Week 2	UI Framework
Week 3	Neural Map Backend Garden Backend
Week 4	Neural Map UI Garden UI
Week 5	Diary Feature Test Scoring
Week 6	Care Drops Integration
Week 7	Admin + i18n
Week 8	QA + Bug Fixes Deployment

2026-01-18   2026-01-25   2026-02-01   2026-02-08   2026-02-15   2026-02-22   2026-03-01   2026-03-08

9.2 Team Allocation Timeline

Team Resource Allocation (8 Weeks)

Dev 1 (Senior)	Setup + Auth + Neural UI Diary + Admin QA + Deploy
Dev 2 (Senior)	Design System + Neural Back Test Scoring + i18n QA + Deploy
Dev 3 (Mid)	DB + Garden UI Care Drops UI QA + Deploy
Dev 4 (Mid/Backend)	API + Garden Back Care Drops Back QA + Deploy

2026-01-18   2026-01-25   2026-02-01   2026-02-08   2026-02-15   2026-02-22   2026-03-01   2026-03-08

X. KẾT LUẬN

Tóm tắt proposal (8 TUẦN FIX):

- **Timeline**: **8 TUẦN** (không thương lượng)
- **Total effort**: 456-577 giờ
- **Team size**: 3-4 developers (peak Week 3-6)
- **Pricing**: $24,500 - 28,000 (Standard) hoặc 28,000$-31,000 (Premium)
- **Risk**: Higher due to tight timeline
- **Mitigation**: Parallel development, scope control, daily communication

Key Commitments:

1. **Timeline**: 8 weeks fixed - any scope changes must trade off
2. **Quality**: Full QA in Week 8, no shortcuts
3. **Communication**: Daily standups, weekly demos
4. **Delivery**: TestFlight + Play Internal Testing by Week 8

Next Steps:

1. Confirm option (Standard $24.5 - 28 khoặc Premium 28$-31k)
2. Finalize scope (freeze sau Week 1)
3. Schedule kickoff (Week 1, Day 1)
4. Mobilize team (3-4 developers ready)

(BA - Lương Quốc Lộc - Chuyên gia Tư vấn Trưởng, 30+ năm kinh nghiệm)