Product Definition Report (PDR)

# Project Title:

Diabetes Companion – A Personal Behavior-Based Web App for Managing Type 2 Diabetes

# 1. Vision Statement

To empower individuals living with Type 2 Diabetes to manage their condition through personalized tracking of diet, exercise, and glucose levels. The app is built from lived experience, focusing on sustainable behavior change through reflection, action, and awareness.

# 2. Background

Majid was diagnosed with diabetes during Ramadan 1996. Despite early success with weight loss and exercise, long-term management required increasing medication and insulin. This app draws from that journey to offer a simple, user-friendly digital companion for people navigating similar challenges.

# 3. Objectives

- Track blood sugar trends using CGM data (real or mock)  
- Guide users in building personalized routines: smarter eating, effective exercise, and consistent glucose monitoring  
- Create a gentle, habit-forming experience  
- Provide clean charts and insights for both patients and providers

# 4. Target Users

- Adults with Type 2 Diabetes  
- People managing prediabetes  
- Caregivers or family members tracking with the user  
- Patients wanting better insights between doctor visits

# 5. Core Features

Dashboard – Daily overview: glucose trends, meals, exercise, medications  
CGM Visualization – Glucose trend chart with real or simulated data  
Diet Tracker – Log meals with carb estimates; reflect on sugar response  
Exercise Tracker – Log workouts and track post-exercise glucose impact  
Reflection Journal – Add notes, tag days (e.g., “good control,” “slip-up”)  
Medication Manager – Input meds, insulin doses, reminders  
Weekly Report – Export summary for personal review or doctor visits

# 6. Tech Stack

Framework: Angular (v17+)  
UI Library: Angular Material  
State Management: Signal Store (NGRX or native signals)  
Charts: ng2-charts (Chart.js) or ngx-charts  
Forms: Angular Reactive Forms  
Backend (optional): Firebase, Supabase, or custom Node.js API  
Auth (future-ready): Firebase Auth or Auth0  
CGM Data Integration: Mock API initially, Dexcom/Libre integration later

# 7. User Journey Example

1. User logs in and sees a clean dashboard with CGM trend.  
2. Logs a walk and notices a flatter glucose curve afterward.  
3. Adds dinner details with estimated carbs and logs feeling.  
4. Gets a gentle reminder to take insulin at bedtime.  
5. Downloads a PDF report before next doctor's appointment.

# 8. Design Principles

- Human-Centered: Built with empathy from real experience  
- Simple: Easy log tools with pre-filled and customizable values  
- Reinforcing: Encouragement for consistency, not perfection  
- Insightful: Visual patterns over time, not one-time metrics

# 9. Implementation Roadmap

Phase 1: MVP

- Angular project setup with Material design  
- CGM chart (mock data, line graph)  
- Log pages: diet, exercise, mood  
- Dashboard with daily summary  
- Local state management (Signals)

Phase 2

- Firebase backend for data persistence  
- Medication scheduler + notification service  
- Weekly summary view/export (PDF or email)

Phase 3

- Dexcom/Fitbit/Libre API integration  
- Personalized suggestions engine (basic AI logic)  
- Role-based access (doctor view, caregiver)

# 10. Success Criteria

- Regular daily usage by target users  
- Increased glucose stability based on user-reported CGM data  
- Positive user feedback about emotional support and usability  
- Engagement with reports during doctor visits