# Project Document: Healthcare Diagnosis and Treatment Using Design Thinking

## Project Title:

Improving Early Diagnosis and Personalized Treatment for Chronic Diseases

## Objective:

To design and implement a patient-centered solution that enhances the accuracy of diagnosis and personalization of treatment plans for chronic disease patients using Design Thinking principles.

## 1. Empathize

Goal: Understand patient needs, medical staff workflows, and systemic healthcare challenges.

Activities:

- Conduct interviews with chronic disease patients (e.g., diabetes, hypertension).

- Observe doctors and nurses during consultations and treatment planning.

- Gather pain points from caregivers and support staff.

- Collect qualitative and quantitative data from healthcare providers and EHRs (Electronic Health Records).

Insights:

- Patients often feel overwhelmed by medical jargon and inconsistent communication.

- Doctors lack time for in-depth consultations due to patient volume.

- Treatment plans are often generic and not tailored to individual lifestyle factors.

## 2. Define

Problem Statement:

Patients with chronic diseases experience delayed diagnosis and receive generalized treatment plans that fail to consider their individual conditions, preferences, and socio-economic contexts.

User Personas:

- Patient Persona: Mary, 58, with Type 2 diabetes, lives alone, limited tech skills.

- Doctor Persona: Dr. Lee, primary care physician with 20 minutes per patient, values efficiency and data-supported decisions.

## 3. Ideate

Brainstorming Sessions:

- AI-assisted symptom checker integrated into telehealth platforms.

- Mobile app for patient journaling and symptom tracking.

- Dashboard for doctors showing patient lifestyle data, alerts, and predictive analytics.

Concepts Generated:

- Smart Diagnosis Assistant (SDA) that aggregates symptoms, lab results, and history.

- Personalized Treatment Plan Generator (PTPG) based on lifestyle inputs and clinical guidelines.

- Multi-language patient education content with visual aids.

## 4. Prototype

Low-Fidelity Prototypes:

- Wireframes for the SDA and PTPG interfaces.

- Paper mock-ups of the mobile app for symptom journaling.

- Printed decision tree flowcharts for physicians to test logic of treatment customization.

Tools Used:

- Figma for UI/UX design

- Lucidchart for data flow mapping

- Google Forms for early usability testing

## 5. Test

User Testing Approach:

- Simulated clinical scenarios with doctors using SDA.

- App usability tests with patient focus groups.

- Feedback collection on clarity, ease of use, and perceived helpfulness.

Key Findings:

- Doctors appreciated decision support but wanted integration with existing EHR systems.

- Patients liked journaling features but requested voice input and simplified navigation.

- Language support and education content reduced patient anxiety.

## Next Steps:

- Develop high-fidelity prototype with EHR integration.

- Run a pilot program in two primary care clinics.

- Measure KPIs: diagnostic accuracy, patient adherence, doctor satisfaction, and health outcomes over 6 months.