# Problem Definition & Define Thinking

**Title:** Healthcare Diagnostics & Treatment

**Problem Statement :**

Medical reports (e.g., lab results, imaging scans) are often filled with \*\*complex jargon, numbers, and unclear risk indicators\*\*, leaving patients anxious and confused. Without immediate access to doctors, people struggle to:

* Understand what their results actually mean.
* Know if findings are urgent, normal, or borderline.
* Decide next steps (e.g., "Should I panic about this thyroid level?").

**Target Audience :**

* Patients receiving lab tests, imaging reports, or chronic condition updates (e.g., diabetes, cholesterol)
* Caregivers/family members managing someone else’s health.
* Health-conscious individuals tracking routine check-ups.

**Objectives:**

* To create a user friendly interface accessible via smartphones & computers.
* This system uses AI to translate medical data into plain language, prioritize risks, and offer actionable guidance—putting patients in control of their health literacy.
* To maintain privacy and confidentiality in handling medical data.

**Design Thinking Approach:**

Patients often hesitate to visit a doctor for mild symptoms due to cost, time, or availability. The goal is to understand the pain points of these users

and address their fear of misdiagnosis or delayed diagnosis.

**Key User Concerns:**

* Trust in AI recommendations.
* Fear of relying on technology without human involvement.
* Ease of use for older adults or non-tech-savvy individuals.

**Define:**

The solution should be able to identify basic health concerns using input symptoms, personal medical history, and environment. It will provide a response indicating whether the issue is likely mild, moderate, or severe, and offer advice on what steps to take next, such as self-care or seeing a doctor.

**Empathize:**

* Patient Pain Points:
  + - My doctor said my report is ‘fine,’ but what does this high creatinine level mean?
    - I have to wait 2 weeks for my oncologist to explain my biopsy.
* Doctor Pain Points:
  + - Repeating basic explanations drains appointment time.

**Prototype example:**

**Upload a blood test PDF → AI generates:**

**1. Summary:**

Your vitamin D is critically low (12 ng/mL). Ideal range: 30–100.

**2.Causes/Risks:**

Likely due to limited sun exposure. Risks: bone weakness, fatigue.

**3.Suggestion:**

- Suggest a vitamin D supplement.

- Eat fatty fish, fortified milk; get 15 mins of sunlight daily.

- Re-test in 3 months

**Why this works:**

**Reduces Anxiety**:

Patients instantly grasp their health status.

**Saves Time:**

Doctors focus on treatment, not definitions.

**Prevents Errors:**

Alerts for overlooked red flags (e.g., drug interactions).

**Use Case:**

A diabetic patient uploads an A1C report. AI highlights: "Your 8.5% A1C indicates poor glucose control. Here’s how to adjust your insulin dose (per your doctor’s protocol) and a 7-day meal plan.

**Test:**

The prototype will be tested by a focus group consisting of individuals from the target audience (remote area patients, elderly users, etc.). They will interact with the AI healthcare assistant, and their feedback will be gathered to improve the system.

**Testing Goals:**

* Ensure AI correctly interprets medical data with ≥95% accuracy compared to clinician reviews.
* Verify patients understand AI-generated summaries without medical knowledge.
* Verify the accuracy of the symptom checker and its advice.