

Problem Statement & Design Thinking

Title: Healthcare Diagnostics and Treatment

Problem statement:

Timely and correct medical diagnosis and appropriate treatment are one of the greatest challenges in today's world. Numerous patients are delayed because there is limited availability of diagnostic equipment, specialists, or clear guidance on treatment—particularly in rural or underserved communities.

The issue is how to make diagnosis and treatment more accessible, efficient, and effective, aiding healthcare professionals while keeping patients from undue delay in receiving the correct care.

Target Audience:

- * Individuals in underserved or rural areas
- * Older adults requiring routine care
- * Patients with mild or non-emergent symptoms
- * Hospitals and clinics that want to reduce workflows
- * Urban professionals who are busy and need immediate access to care

Objectives:

- * Create an AI system that provides simple medical advice by symptoms
- * Guide users on when to visit the doctor
- * Ensure the system is simple to use on phones and computers
- * Secure and keep all medical information confidential

Design Thinking Approach:

Empathize:

Most patients do not visit doctors for minor symptoms because of time, expense, or lack of access. It is essential to address their concerns to gain their trust and offer credible assistance.

Key User Concerns:

- * Trusting AI to provide medical advice
- * Fear of technology replacing human physicians
- * Ease of use for older or non-technical users

Define:

The system would need to look at symptoms, medical history, and context in order to gauge the severity—mild, moderate, or severe—and instruct users on proper next steps such as self-care or visiting a doctor.

Key Features Required:

- * AI-based symptom checker employing medical data
- * Intuitive and user-friendly interface across all age brackets
- * Simple, actionable health advice (e.g., self-care or get a doctor)
- * Robust data privacy and security controls

Ideate:

Potential solutions are:

- * Basic health question-answering AI chatbot
- * Mobile app for input of symptoms and AI guidance
- * Wearable integration to monitor vitals and enhance accuracy

Brainstorming Results:

- * Symptom-based interaction and advice chatbot
- * Multilingual support for greater accessibility
- * Reminders or gamified features to help users track symptoms regularly

Prototype:

Developing a basic chatbot where users can input their symptoms, and chatbot gives:

- * Potential health issues
- * Self-care advice
- * Instructions on when to see a doctor and how quickly

Key Components of Prototype:

- * Symptom-condition database
- * NLP model to understand user input
- * Decision logic to evaluate urgency (emergency vs. routine)

Test:

The target users (e.g., distant patients, older people) will conduct a focus group test for the prototype. They will give feedback that will help improve the AI assistant's accuracy, user experience, and usability.

Testing Goals:

- * Assess user trust in AI recommendations
- * Test for ease of use by older and non-technical users
- * Authorize accuracy of symptom analysis and guidance