# 🧪 Self-Study Assignment: Building a Smart Dietitian Chatbot in Google AI Studio

## 🎯 Goal

Build and refine a smart chatbot that simulates a professional dietitian using Google AI Studio. The chatbot should interact with users in a personalized, sensitive, and dynamic way — adapting questions step-by-step, summarizing insights, and offering recommendations.

## 💡 What You’ll Practice

Prompt engineering techniques:

* - Persona crafting – establishing tone, expertise, and empathy
* - Chain of Thought (CoT) – designing a dynamic, adaptive flow
* - Guidelines (דגשים) – adding behavioral directions to shape the chatbot’s style

Google AI Studio features:

* - Comparing different model versions (e.g., Gemini 1.5 vs Gemini Flash) for tradeoffs in cost vs performance
* - Experimenting with temperature, grounding (search), and prompt history
* - Validating performance using test scenarios and observation

## 📌 Your Task

1. Define the Chat Experience

* - Your assistant is a 20-year veteran dietitian.
* - The assistant should open with a brief intro and begin a step-by-step questionnaire, adapting based on the patient’s answers.
* - Prioritize clarity, empathy, and short, simple questions.
* - Use multiple-choice format when possible to reduce friction.
* - After the flow, offer a short summary and 3 top recommendations.

2. Use Prompt Engineering Tools

* - Persona: Describe who the assistant is and how they should act
* - CoT: Think about how the assistant can logically build the conversation — e.g., age → lifestyle → goals → sleep → habits
* - הנחיות: Guide the assistant's behavior — e.g., keep it warm and sensitive, never overload, always summarize

3. Tune the System Settings

* - Experiment with temperature (e.g., lower = more consistent, higher = more creative)
* - Try enabling grounding with Google Search for more real-world responses
* - Use model comparison to test how different versions affect tone, clarity, or response time

## 🔁 Validation: Test Across Three Patient Types

Use these 3 case studies to evaluate your prompt:

1. 1. A 25-year-old vegan trying to gain weight
2. 2. A 45-year-old diabetic aiming to reduce sugar intake
3. 3. A 30-year-old woman with gluten intolerance trying to increase energy levels

For each case:

* - See how the assistant adapts questions dynamically
* - Evaluate tone and sensitivity of responses
* - Check the relevance and clarity of final recommendations

💬 Tip: Create a side-by-side test using the “Compare Prompts” or “Compare Models” features in Google AI Studio to observe differences in answers.

## 🧭 Explore and Reflect

As you go, reflect on the following:

* - How does changing the model affect speed and quality?
* - What trade-offs do you see between Gemini 1.5 Pro and Gemini Flash?
* - How does grounding improve the relevance of recommendations?
* - What changes when you increase or decrease the temperature?

## 🧠 Bonus:

Try to tweak the assistant to support other areas like:

* - Fitness
* - Emotional eating
* - Sleep habits

…and evaluate whether your structure still holds.