

Task 1: Practicing Chain-of-Thought Reasoning for Database Selection

In this task we will be practicing **Chain-of-Thought Reasoning** prompting technique to select a proper **Database** for an Application.

Theory

AI Technique: Chain-of-Thought Reasoning

Chain-of-Thought (CoT) reasoning is an approach used in prompting AI models to think **step-by-step**, mimicking how humans often solve complex problems.

Instead of jumping straight to an answer, the AI is encouraged to break down the problem into **logical steps**, leading to more accurate and **explainable** outcomes.

This technique is especially useful when:

- The answer depends on **multiple factors**
 - Reasoning and justification** are required
 - The goal is to **trace how a conclusion was reached**
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Example:

Question: If a train travels 60 km in 1.5 hours, what is its average speed?

- **Without CoT:**
→ 40 km/h
- **With CoT:**
→ The train travels 60 km in 1.5 hours.
→ Speed is calculated as distance divided by time.

→ $60 \div 1.5 = 40$.

→ **Answer: 40 km/h**

Even for a simple question, CoT makes the logic **transparent** and reduces the chance of mistakes—especially useful for more complex tasks.

Task

You are selecting a **database** for a new application. You have the following requirements:

- Social platform with **millions of users**
 - Need to store **profiles, posts, and connections** between users
 - **High data read speed** required
 - Expected **80% read operations, 20% write operations**
 - **Scalability** is important as the user base grows
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Using ChatGPT UI, DeepSeek, or any other conversational AI tool, craft a **prompt** that instructs the assistant to apply **Chain-of-Thought (CoT)** reasoning in order to:

-  Analyze a given set of project requirements
-  Justify and select the most suitable type of **database** for the project

The AI's reasoning should be **step-by-step** and **well-structured**, clearly showing how the decision was made based on the requirements.

Requirements

- Your prompt should use **Chain-of-Thought reasoning**
- The analysis that you got using your prompt should **align with all the requirements** stated in the task description