

# Generative AI: Use Cases & Prompt Engineering



Tarun Jain  
GDE in AI/ML and Data Scientist  
@TRJ\_0751

# \$whoami

Super Agent @AIPlanet 🥑

AI with Tarun - Youtube 🗣️

Google Developer Expert in ML 🦄

GSoC'24 @RedHenLabs ★

Won 6 AI Hackathons (1 International) 🏆

I watch Anime and read Manga 🏯



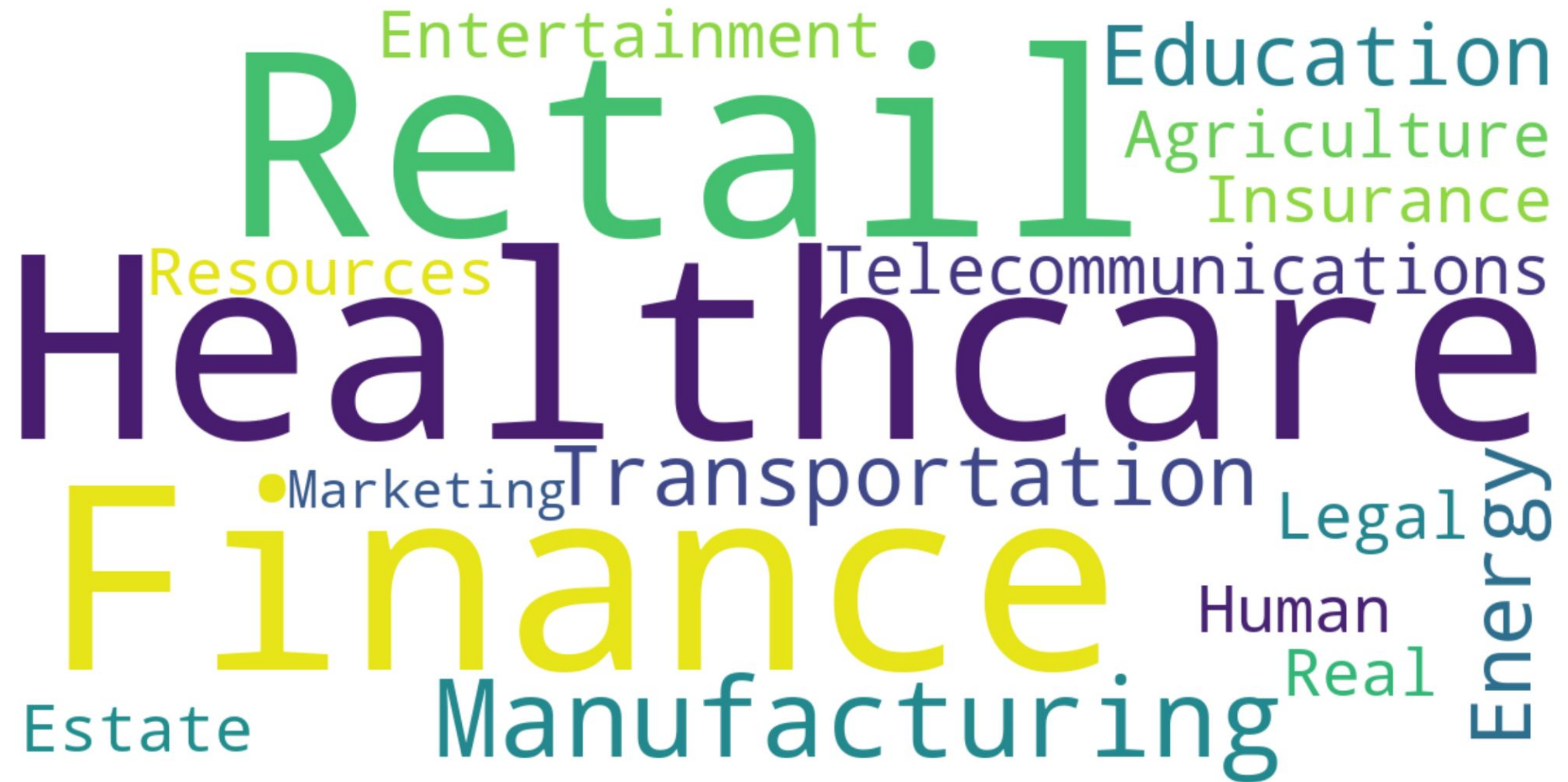


Let's talk about Generative AI





AI is everywhere in the industry



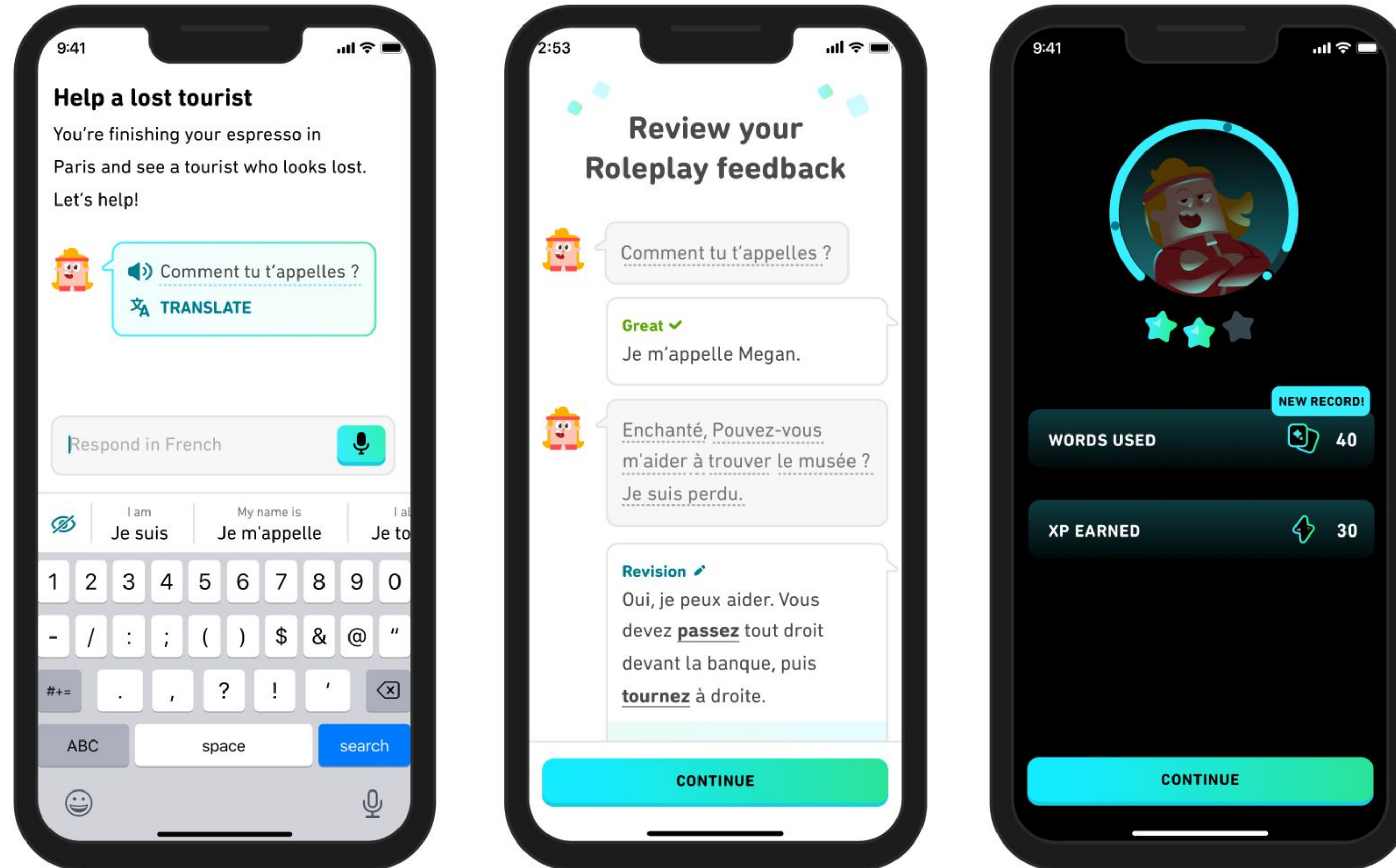
Since AI is everywhere Data is also everywhere





# How companies are using AI

# Duolingo- launched Duolingo Max



<https://blog.duolingo.com/duolingo-max>

# Khan Academy

“Education” comes first and “Technology” comes second.



<https://blog.khanacademy.org/how-we-built-ai-tutoring-tools/>



# Chegg announces CheggMate



<https://investor.chegg.com/Press-Releases/press-release-details/2023/Chegg-announces-CheggMate-the-new-AI-companion-built-with-GPT-4/>

# Why am I talking about this?

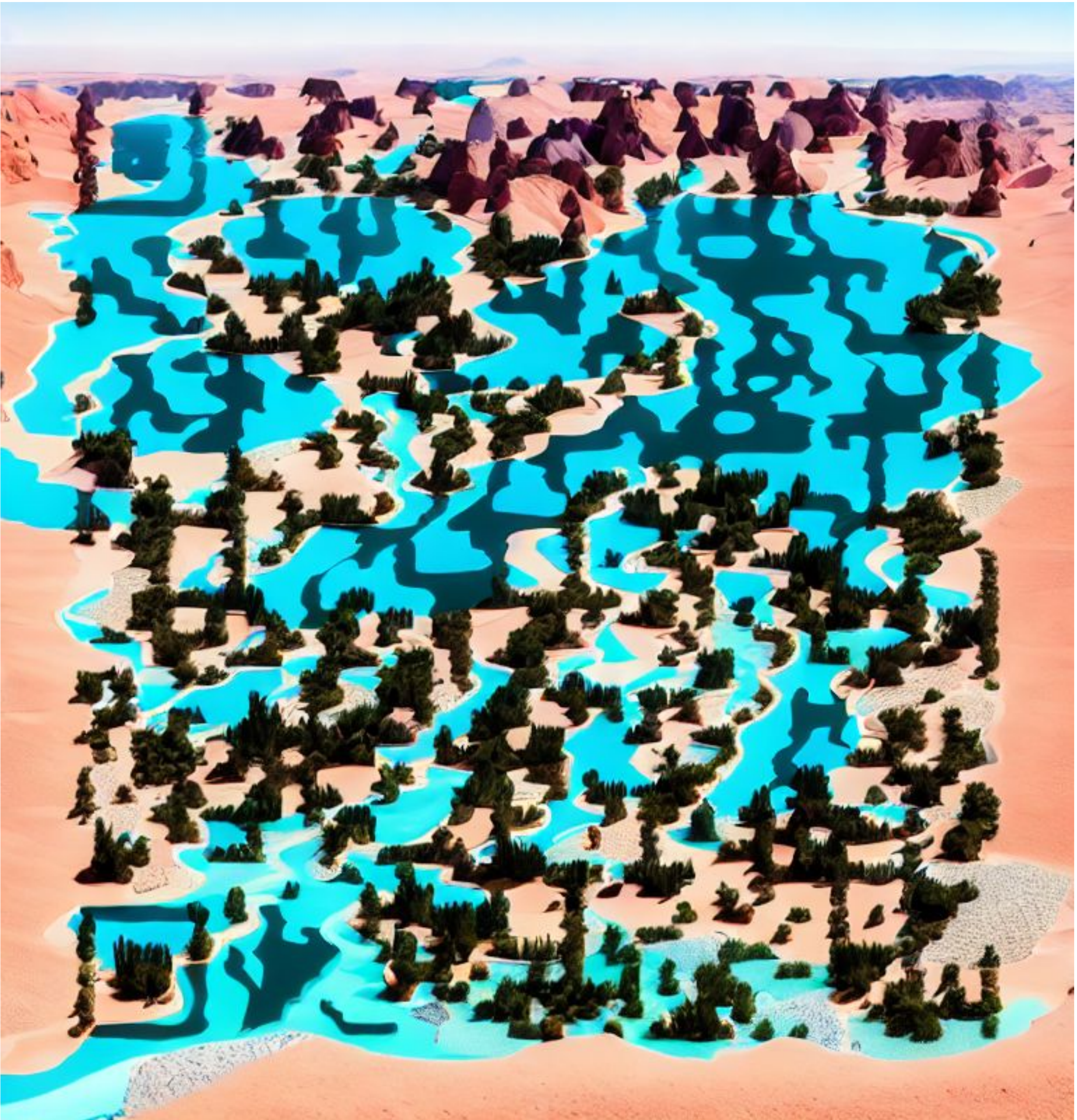
The topic is supposed to be **Prompt Engineering**, right?




# User Prompt Vs System Prompt










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Large Language Models (LLMs)

Public



# How to write a system prompt

## Syntax

- Focus on **clear, specific instructions** about how the AI should behave and respond
- Establish the **AI's role play**: persona, tone, and expertise level
- Define boundaries/**instructions** by including what the AI should avoid doing
- Include formatting preferences and output structure expectations

## Example

You are a knowledgeable teaching assistant for secondary school science classes in India. Provide explanations that:

- Connect concepts to NCERT curriculum standards
- Include culturally relevant examples from Indian contexts
- Use simple language accessible to English language learners

Avoid overwhelming students with advanced terminology.  
Include 1-2 practice questions with solutions when appropriate.

# When to use which LLM?

## Claude vs ChatGPT vs Gemini vs Perplexity

- Claude - Coding related tasks mainly: 3.7 Sonnet or 3.5 Sonnet
- ChatGPT - Structured reasoning and planning. General purpose questions.
- Gemini - Multilingual translation and for Multimodal capabilities.
- Perplexity - For research purposes and relevant source search



# Different prompt engineering

Everyone must know. Slides: [bit.ly/fdp-ramaiah-prompts](https://bit.ly/fdp-ramaiah-prompts)

# Zero-Shot Prompting

## Syntax: Examples + new problem

Explain the law of conservation of energy with everyday examples to a 10 year old.

List five ways to make mathematics more engaging for Class 8 students.



# Few-Shot Prompting

## Syntax: Direct question without examples

Identify the literary device in each sentence:

"The sun smiled down on the children." -

Personification

"The silence was deafening." - Oxymoron

"She sells seashells by the seashore." - Alliteration

Now identify these:

"Life is a journey, not a destination." - ?

"His words cut deeper than a knife." - ?

Translate these sentences to Hindi:

"My name is Tarun." → "मेरा नाम तरूण है।"

"I like to read books." → "मुझे किताबें पढ़ना पसंद है।"

Now translate:

"Today is Monday." → ?

"She is a teacher." → ?

# Chain of Thought

Syntax: Problem + "Think step by step"

A shopkeeper buys 12 notebooks for ₹240 and sells them at ₹25 each.  
Calculate his profit percentage.

Think step by step.

A train leaves Delhi at 8:00 AM and travels at 60 km/h toward Jaipur. Another train leaves Jaipur at 9:00 AM and travels at 70 km/h toward Delhi. If the distance between Delhi and Jaipur is 310 km, at what time will they meet?

Think step by step.



# Tree of Thoughts

## Syntax: Problem + multiple reasoning paths

Plan a field trip for Class 9 students.

Path 1: Consider educational objectives

(curriculum alignment, learning outcomes)

Path 2: Consider logistics (transportation, cost, permissions)

Path 3: Consider safety and supervision requirements

Evaluate each path and recommend the best approach.

How should we teach the Partition of India to Class 10 students?

Path 1: Focus on historical facts and timeline

Path 2: Focus on personal narratives and experiences

Path 3: Focus on multiple perspectives from different communities

Compare these approaches and determine which would be most effective.

# Role Prompting

## Syntax: Assign role + task

You are a CBSE Class 12 Physics teacher preparing students for competitive exams. Explain the concept of electromagnetic induction with examples that will help students solve JEE-level problems.

You are a primary school English teacher working with rural students who are first-generation learners. Create a simple activity to teach basic vocabulary related to family members.



# Best practices

## Closing thoughts- Tips of the day

1. **Be specific and clear** - Define exactly what output you need (format, length, difficulty level).
2. **Include context** - Mention relevant curriculum standards, student grade level, and prior knowledge.
3. **Use constraints** - Specify what to avoid (complex terminology, culturally insensitive examples).
4. **Layer techniques** - Combine approaches like role prompting with chain-of-thought for better results.
5. **Include evaluation criteria** - Specify how success will be measured (student engagement, comprehension checks, assessment results).



# Resource





- Tarun R Jain - LinkedIn
- @TRJ\_0751- Twitter
- AI with Tarun - YouTube
- AlwithTarun.ai - Instagram

