

# Table of Contents

- Creating Research Reports with Gen AI

# Table of Contents

- Creating Research Reports with Gen AI
- Quick Primer on Prompting

# Table of Contents

- Creating Research Reports with Gen AI
- Quick Primer on Prompting
- Demo: Naive Prompt Engineering for Research Reports

# Table of Contents

- Creating Research Reports with Gen AI
- Quick Primer on Prompting
- Demo: Naive Prompt Engineering for Research Reports
- Agentic Workflows

# Table of Contents

- Creating Research Reports with Gen AI
- Quick Primer on Prompting
- Demo: Naive Prompt Engineering for Research Reports
- Agentic Workflows
- Introducing our experts

# Table of Contents

- Creating Research Reports with Gen AI
- Quick Primer on Prompting
- Demo: Naive Prompt Engineering for Research Reports
- Agentic Workflows
- Introducing our experts
- It's Demo Time! 🚀

# Table of Contents

- Creating Research Reports with Gen AI
- Quick Primer on Prompting
- Demo: Naive Prompt Engineering for Research Reports
- Agentic Workflows
- Introducing our experts
- It's Demo Time! 🚀
- Poll: *Best demo?*

# Table of Contents

- Creating Research Reports with Gen AI
- Quick Primer on Prompting
- Demo: Naive Prompt Engineering for Research Reports
- Agentic Workflows
- Introducing our experts
- It's Demo Time! 🚀
- Poll: *Best demo?*
- Feedback Analysis & Q&A



# Table of Contents

- Creating Research Reports with Gen AI
- Quick Primer on Prompting
- Demo: Naive Prompt Engineering for Research Reports
- Agentic Workflows
- Introducing our experts
- It's Demo Time! 🚀
- Poll: *Best demo?*
- Feedback Analysis & Q&A
- Semi-Live Demo on building research reports with langgraph

# Creating Research Reports with Gen AI

# RESEARCH

THE RESEARCH PROCESS

RESEARCH IS THE SYSTEMATIC INVESTIGATION OF A  
TOPIC OR PROBLEM IN ORDER TO DISCOVER  
NEW INFORMATION OR TO VERIFY EXISTING  
KNOWLEDGE. IT INVOLVES THE COLLECTION OF  
DATA, ANALYSIS OF THAT DATA, AND THE  
DRAWING OF CONCLUSIONS. RESEARCH IS  
A CRITICAL THINKING SKILL THAT IS  
ESSENTIAL FOR THE ADVANCEMENT OF  
HUMAN KNOWLEDGE.

RESEARCH IS A PROCESS THAT INVOLVES  
THE IDENTIFICATION OF A PROBLEM, THE  
FORMULATION OF A RESEARCH QUESTION,  
THE DESIGN OF A RESEARCH STUDY,  
THE COLLECTION OF DATA, THE ANALYSIS  
OF THAT DATA, AND THE DRAWING OF  
CONCLUSIONS.

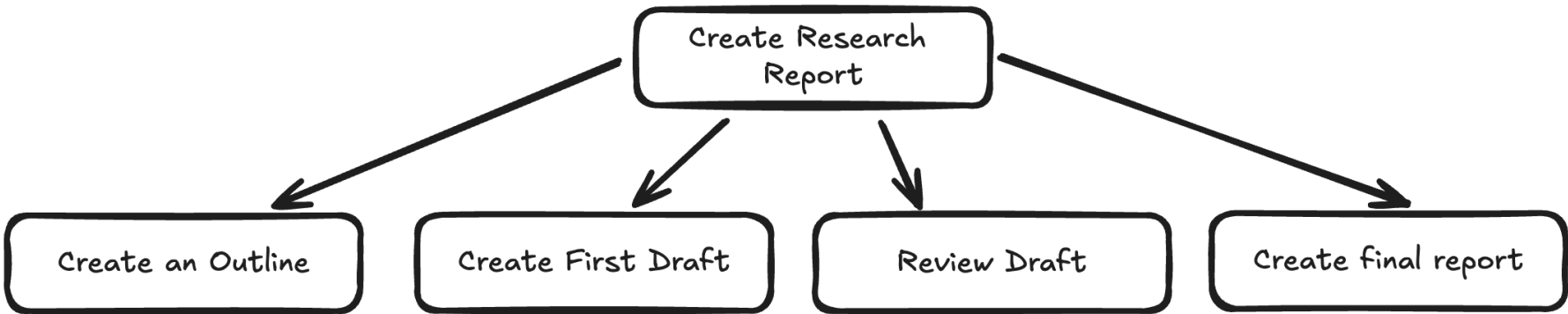
Introduction

Body

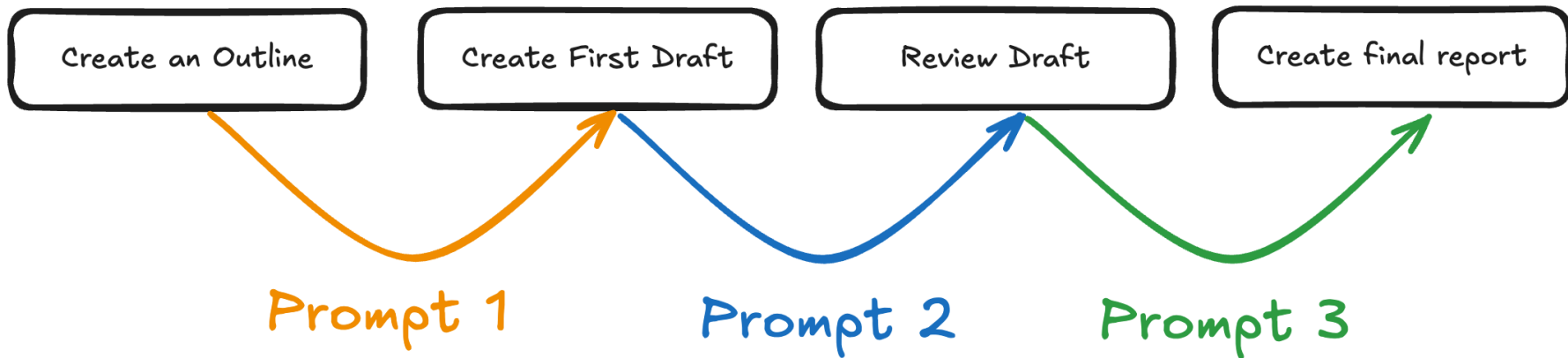
Conclusion

References





# Prompt Engineering Workflow



# Quick Primer on Prompting

# Prompt Basics

## Components of the prompt

**You are a text annotation engine.**

**Classify this sentence into positive or negative:**

**Text:** *I like eating pancakes*

**Output:**



# Prompt Basics

## Components of the prompt: **instruction**

● **Instruction:** where you describe what you want

→ You are a text annotation engine.  
**Classify this sentence into positive or negative:**  
**Text:** *I like eating pancakes*  
**Output:**

# Prompt Basics

Components of the prompt: **instruction**, context

- **Instruction:** where you describe what you want
- **Context:** additional information to help with performance.

→ You are a text annotation engine.  
**Classify this sentence into positive or negative:**  
*Text: I like eating pancakes*  
**Output:**

# Prompt Basics

Components of the prompt: **instruction**, context **input data**

● **Instruction:** where you describe what you want

● **Input data:** example of data you wish the model to process

● **Context:** additional information to help with performance.

→ You are a text annotation engine.  
Classify this sentence into positive or negative:  
Text: *I like eating pancakes*  
Output:

# Prompt Basics

Components of the prompt: **instruction**, context **input data**, **output indicator**

- **Instruction**: where you describe what you want
- **Context**: additional information to help with performance.
- **Input data**: example of data you wish the model to process
- **Output indicator**: Priming model to output what you want (e.g structure, length, etc..)

→ You are a text annotation engine.  
Classify this sentence into positive or negative:  
Text: *I like eating pancakes*  
Output:

# Building Good Prompts

## 3 Simple Rules

# Building Good Prompts

## 3 Simple Rules

- **Write clear instructions**

# Building Good Prompts

## 3 Simple Rules

- Write clear instructions
- **Bad:** Who's president?

# Building Good Prompts

## 3 Simple Rules

- **Write clear instructions**
- **Bad:** Who's president?
- **Better:** Who was the president of Mexico in 2021?

[3][OpenAI's Prompt Engineering Guide](#)



# Building Good Prompts

## 3 Simple Rules

- **Provide reference text**

# Building Good Prompts

## 3 Simple Rules

- Provide reference text

### **SYSTEM**

Use the provided articles delimited by triple quotes to answer questions. If the answer cannot be found in the articles, write "I could not find an answer."

### **USER**

<insert articles, each delimited by triple quotes>

Question: <insert question here>

[3][OpenAI's Prompt Engineering Guide](#)

# Building Good Prompts

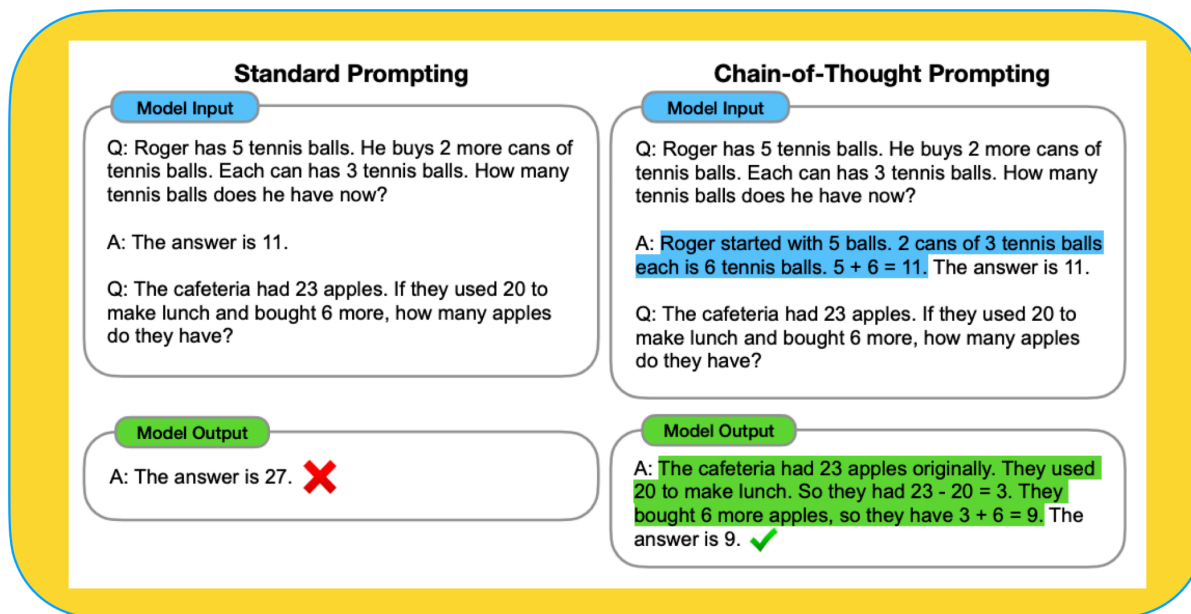
## 3 Simple Rules

- **Break tasks into subtasks**

# Building Good Prompts

## 3 Simple Rules

- Break tasks into subtasks



[3] [OpenAI's Prompt Engineering Guide](#)

## Demo: Naive Prompt Engineering for Research Reports

# When is Prompt Engineering Not Enough?

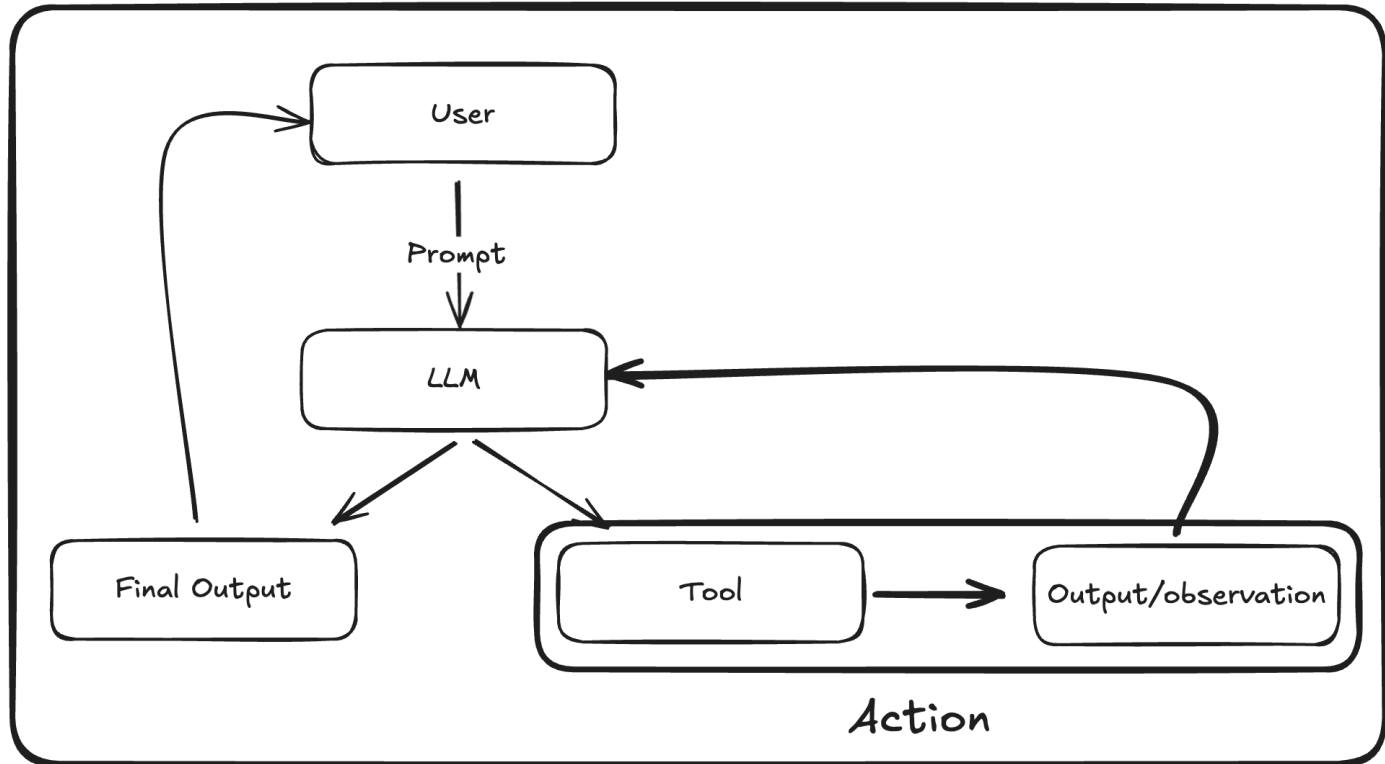
*when a problem requires access to specific data or  
usage of tools to be completed*

**What can we do instead?**

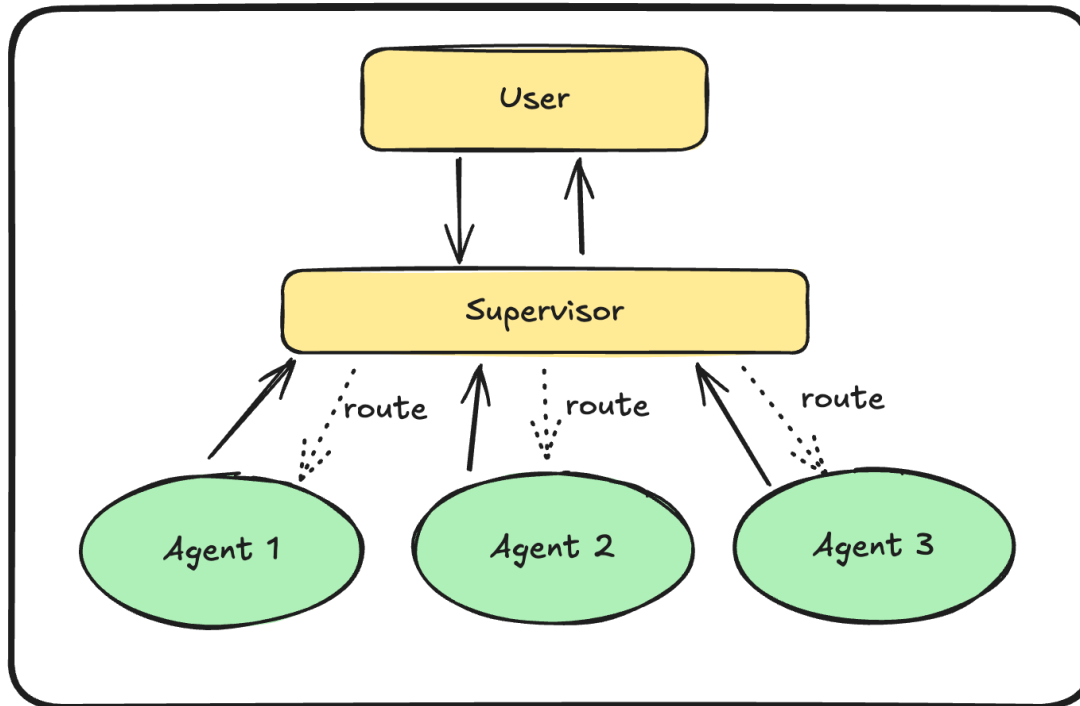


# Agentic Workflows

# ReAct Agent Loop



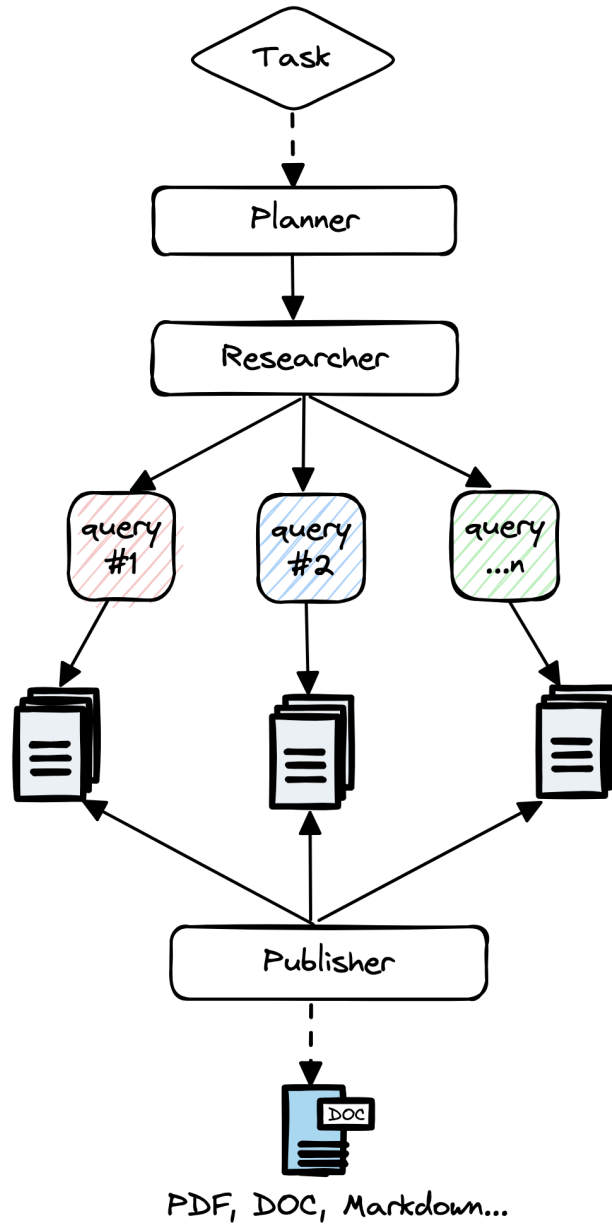
# Agent Supervisor Pattern



# The Repo that started it all: *GPT-Researcher*

## Demo: GPT-Researcher

[GPT-Researcher github](#)



# Introducing our experts

# 1 - Aishwarya Naresh Reganti

works as a GenAI tech lead at the AWS GenAI Innovation Center, leading partnerships with external AWS customer organizations, usually mid to large-sized companies. These partnerships aim to identify, develop, and evaluate cutting-edge solutions using generative AI technologies for critical business functions. With more than eight years of experience in machine learning and contributions to over 30 research publications in prestigious conferences like AAAI, ACL, CVPR, NeurIPS, and EACL, her work spans a range of topics. These include Large Scale Graph Neural Networks, Machine Translation, Multimodal Summarization, and the exploration of Social Media and Networks, Human-Centric ML, Artificial Social Intelligence, and Code-Mixing. In addition to her professional work, Aishwarya has been involved in mentor several Master's and PhD students in the aforementioned areas. Aishwarya has also designed multiple online courses covering Generative AI concepts, which have drawn in over 3,000 students. Additionally, she frequently shares simplified insights on complex generative AI research on LinkedIn, making it easier for more people to understand and use.

## 2 - Sajal Sharma

AI engineer with over 8 years of experience in the tech industry. He specializes in machine learning, natural language processing, and software engineering. Sajal has mentored students in Machine Learning and Data Science at Udacity. He holds a master's degree from the University of Melbourne and is currently working at Menyala, a venture builder founded by Temasek, a global investment firm based in Singapore. (Video is 11:35 minutes long)



# 3 - Richmond Alake

Richmond Alake is an AI/ML developer advocate at MongoDB, where he creates high-quality technical learning content for Developers and MongoDB customers building AI applications. In this role, he provides expert guidance on best practices for developing AI solutions that leverage Large Language Models (LLMs) and MongoDB, as well as offering insights on integrations and other critical aspects of AI development. Prior to joining MongoDB, Richmond served as a Machine Learning Architect at Slalom Build within their Data Engineering practice. There, he explored the use of Generative AI solutions for a diverse range of use cases as well as implementing efficient compute data pipelines for AI/data intensive applications. Richmond's expertise in AI extends to his previous role as a Computer Vision Engineer at a London-based startup. In this position, he worked with state-of-the-art deep learning models to create interactive and immersive experiences on mobile devices. (Video is 13:01 minutes long)

# 4 - Nicole Königstein

Data scientist and quantitative researcher working as chief AI officer and head of quantitative research at quantmate. She also serves as an AI consultant, leading workshops and guiding companies from AI concept to deployment. She's the author of Mathematics for Machine Learning with NLP and Python and Transformers in Action with Manning Publications, and the author of the forthcoming book Transformers: The Definitive Guide, with O'Reilly Media. As a guest lecturer, Nicole shares her expertise in Python, machine learning, and deep learning at various universities. (Video is 10:00 minutes long)

# Raghavan Muthuregunathan

Raghavan, a senior engineering manager at LinkedIn, is leading the search AI team that powers the global typeahead box and the subsequent landing page on LinkedIn, the LinkedIn premium Gen AI assistant. He is also a volunteer for the Linux Foundation's GenAI Common, leading multiple work streams related to generative AI applications, education and outreach. (Video is 10:13 minutes long)

**It's Demo Time! 🚀**

# Feedback Analysis

Share Excalidraw Screen