



Deep Dive on Advanced Prompt Engineering

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Coffee on us.

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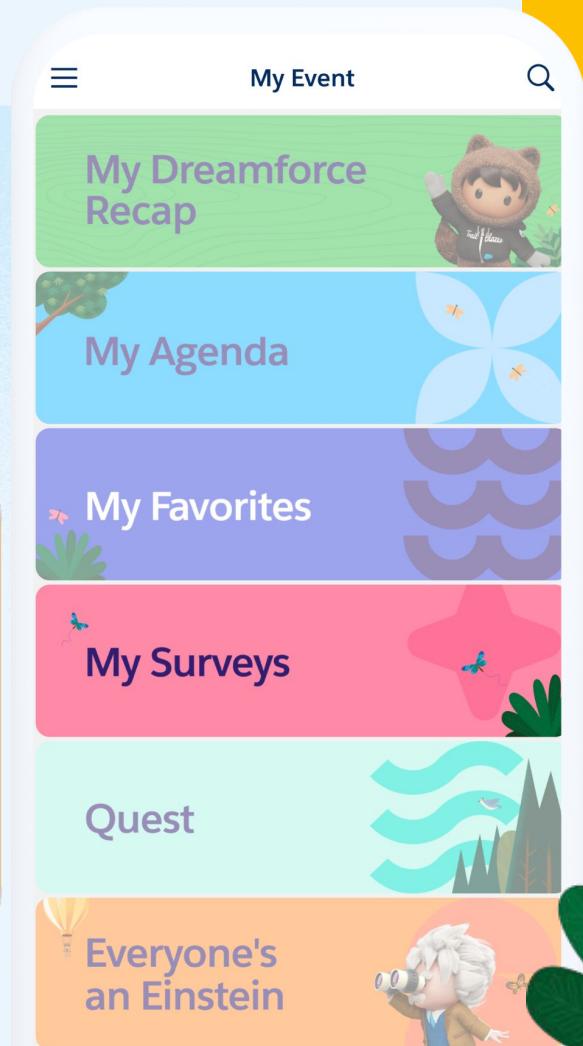
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Thank you

Ramanathan Pachaiyappan

Sr. Salesforce Solution Architect



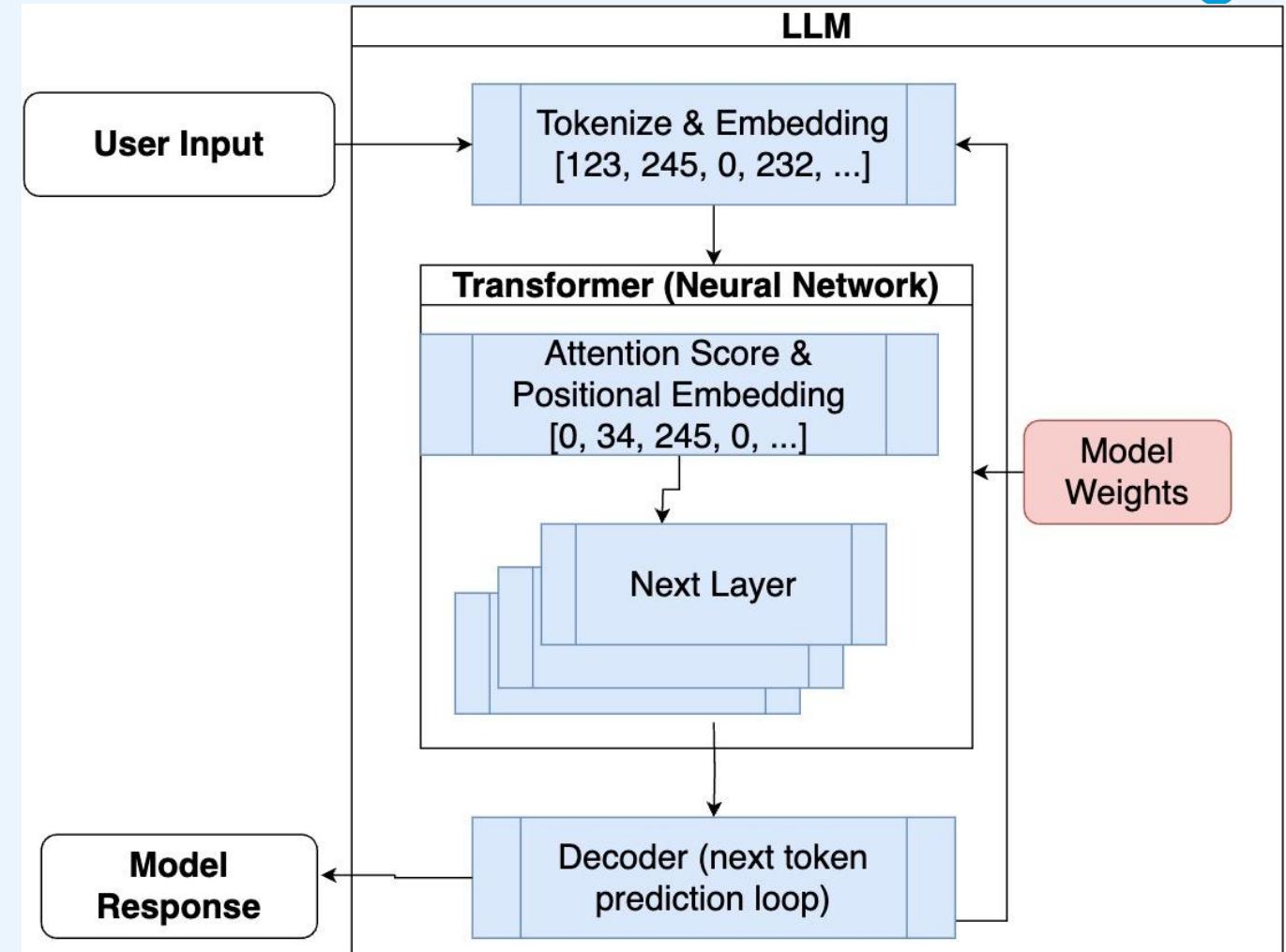
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Agenda

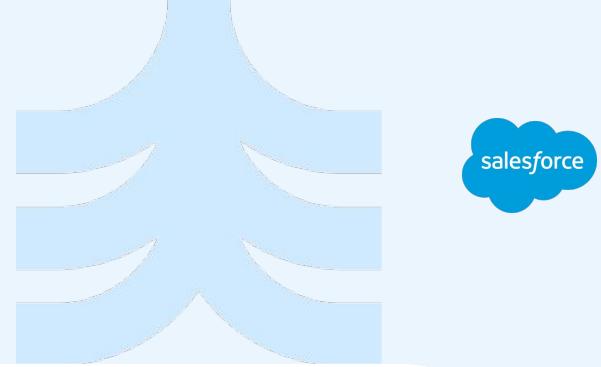
- Introduction
- Prompt Basics
- Advanced Prompting with Demos
- Q&A

Introduction

Large Language Models (LLMs) are AI models trained on internet scale data and capable strong language reasoning and **next token prediction**.



LLM Optimization Techniques



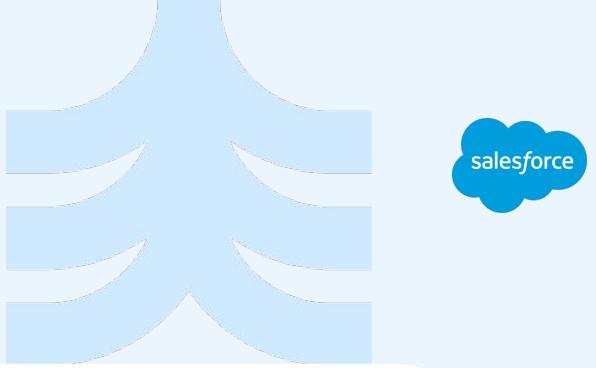
- **Prompt Engineering** **
- **Retrieval Augmented Generation (RAG)** **
- **Fine Tuning** ***
- **Parameter Efficient Fine Tuning (PEFT)** ****
- Combination of above techniques deployed for better response and alignment with human preference

** Low Complexity

**** High Complexity



Why Prompt Engineering?



- Many LLM models, closed training process, no common standards, general knowledge but no speciality
- Prompt engineering techniques are useful to design, evaluate prompts against various models and improve model response
- Use Prompt Builder for designing, evaluating, iterating prompts

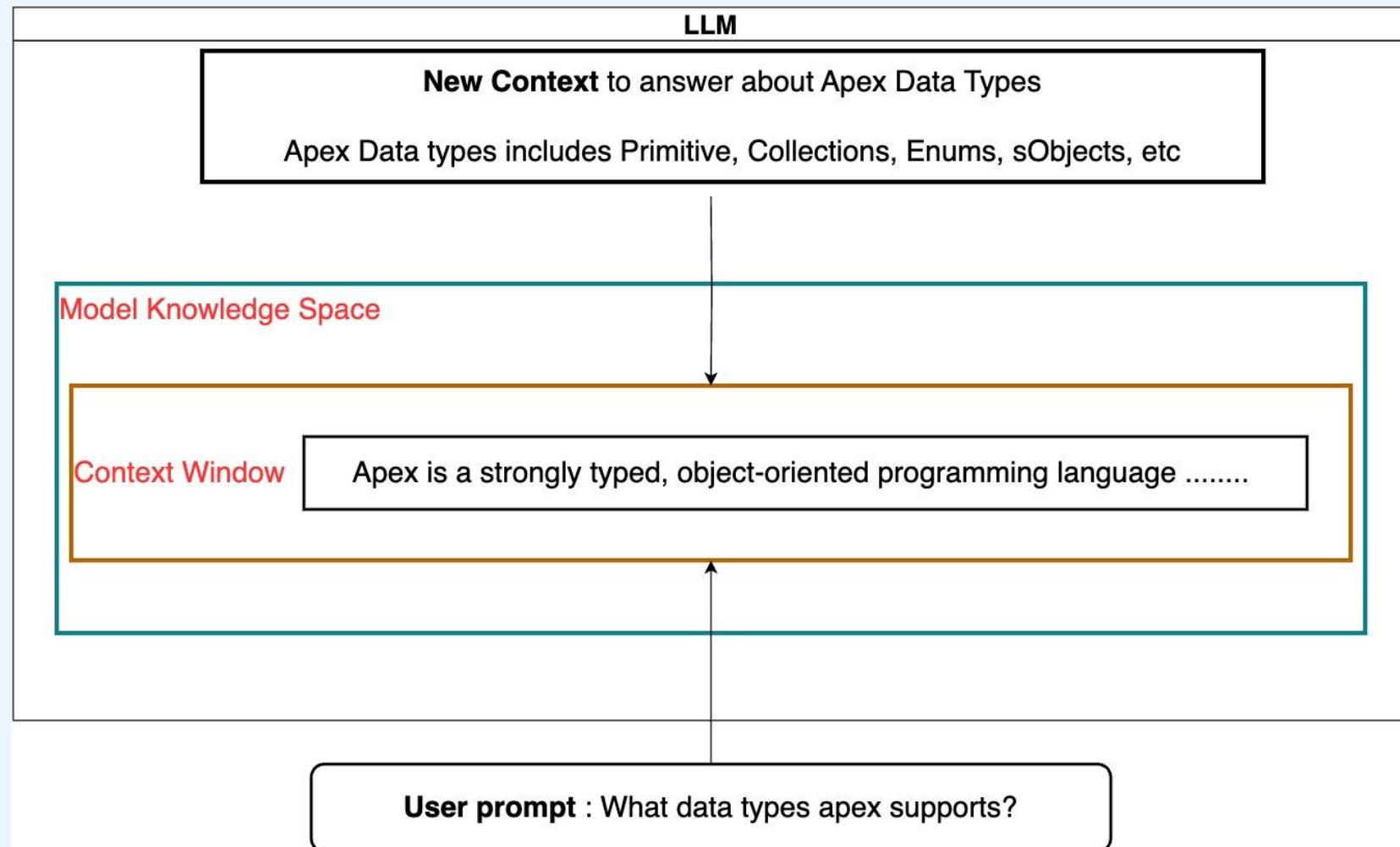


Context Window

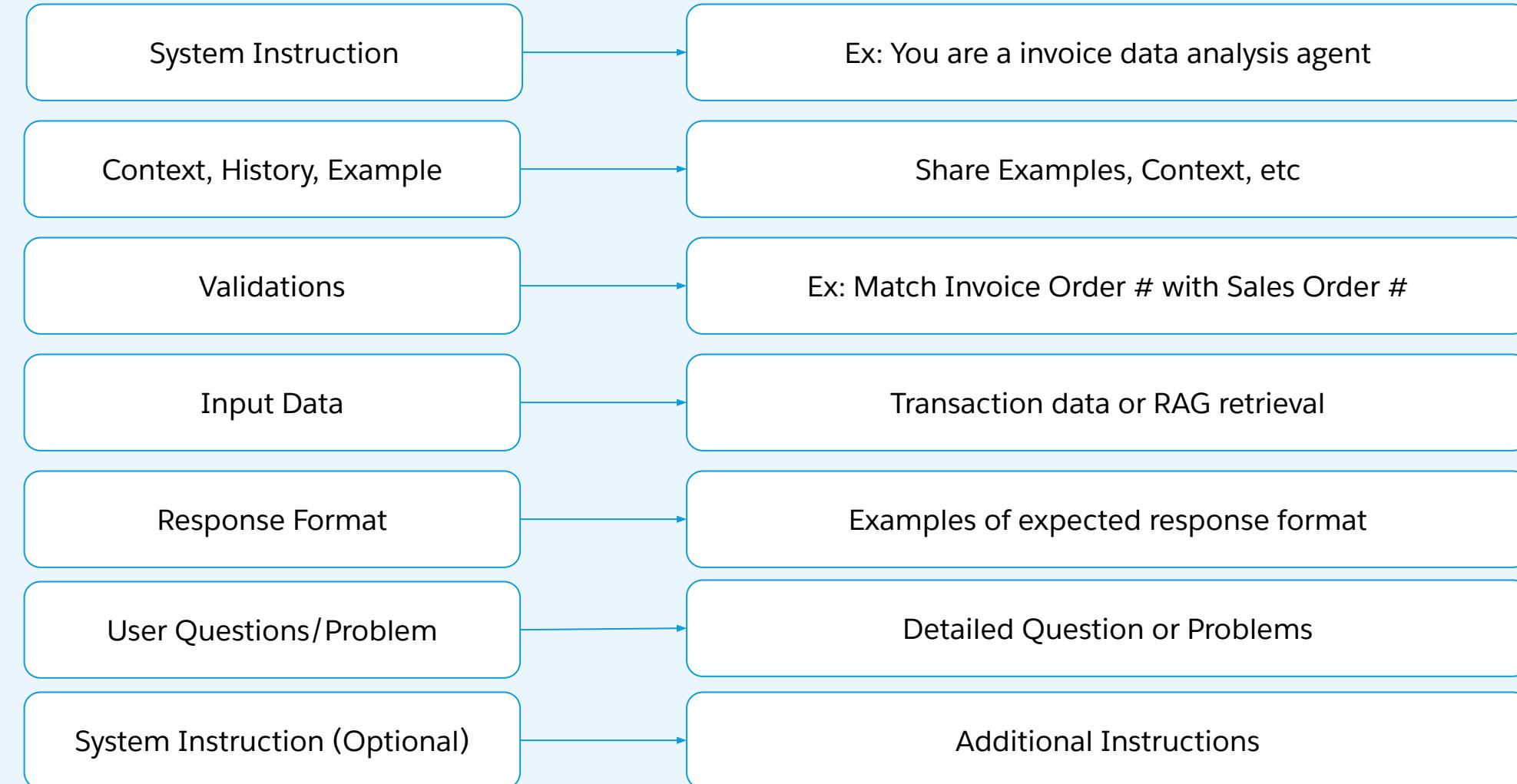
Amount of information of Model can lookup

In Context Learning (ICL)

Ability of model to gain short term insight from examples/context



Prompt Elements

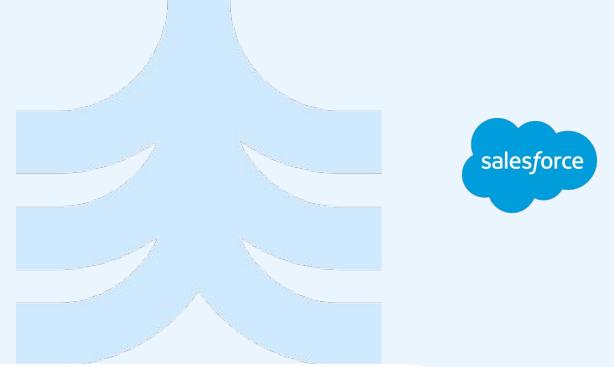


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Few Shot Prompting

Learn from examples



Teaching model new concepts/patterns in the moment (ICL) through examples to improve model prediction accuracy and response.

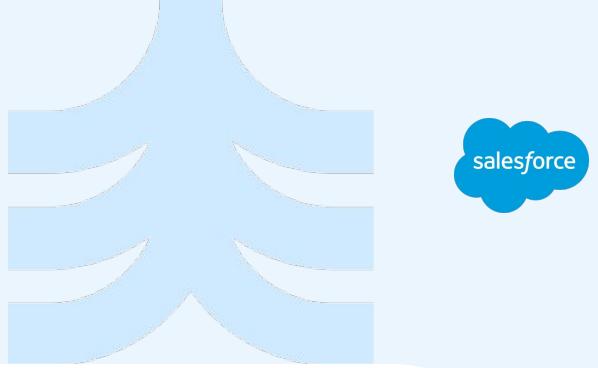


Few Shot Prompting Demo



Chain of Thought Prompt (Few Shot CoT)

Let's think step-by-step



- Arithmetic or logical problem solving requires step by step reasoning to get accurate result.
- Few examples with step by step reasoning will help the model learn (ICL) and solve similar problems.

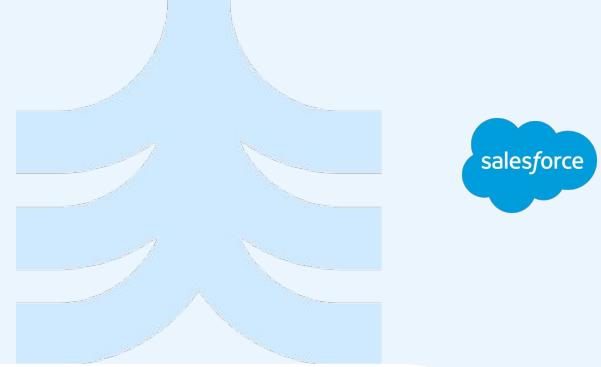


Chain of Thought Prompting Demo



Prompt Chaining

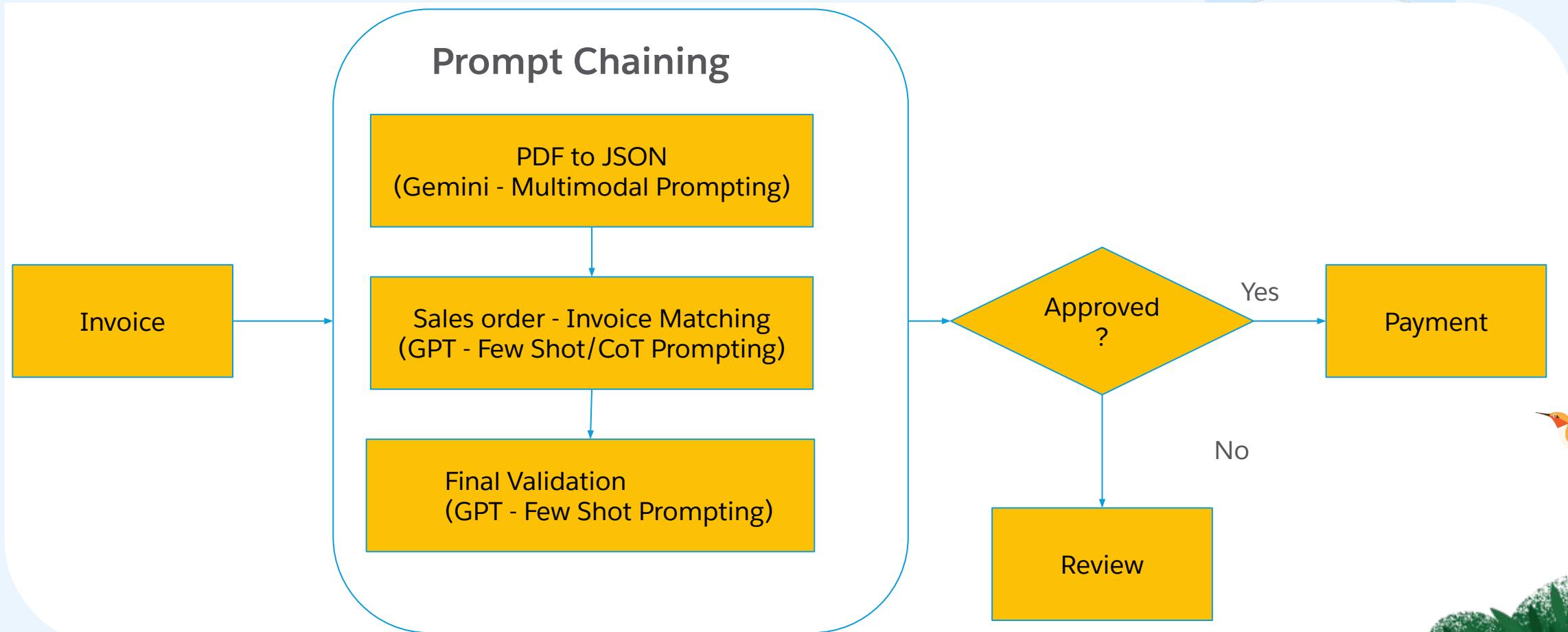
Orchestration using prompts & speciality models



- Executing complex tasks as single prompt may not be effective strategy
- Decomposing complex tasks into multiple prompts (sub-tasks), solving with speciality models and chaining will yield much better performance.



Demo Use Case - Invoice Automation AI



Prompt Chaining Demo



Prompt Lifecycle Management

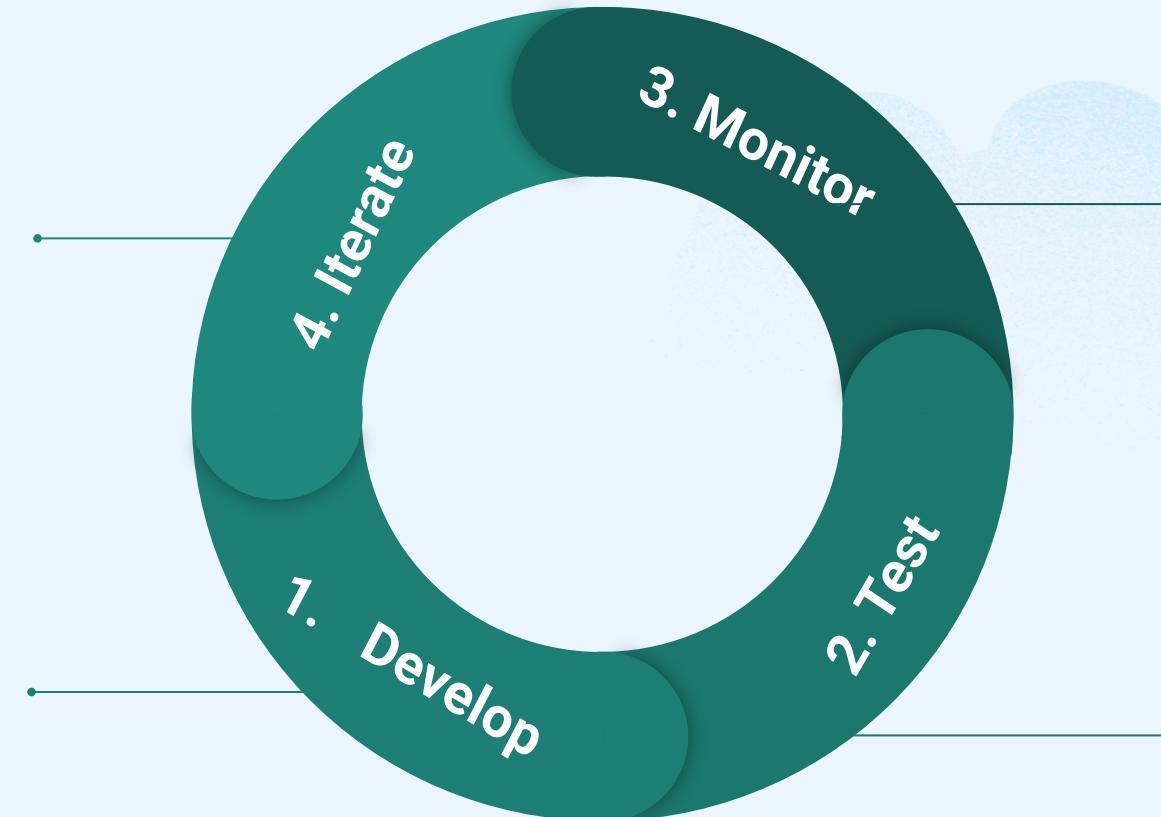


Iteration

Prompt template for versioning, iterate with feedback, improve performance and accuracy

Planning & Development

Prompt Builder, Prompt Template, Model API, Platform Tools



Security, Analytics and Monitoring

Data Cloud AI Reporting, Einstein Trust Layer (Event Monitoring, Masking, Data Detect, etc),

Testing & Evaluation

Manual Test, AI Test Center, Open Source Eval (Promptfoo, DeepEval)

Resources





Thank you