TEAM 80

TM12.0

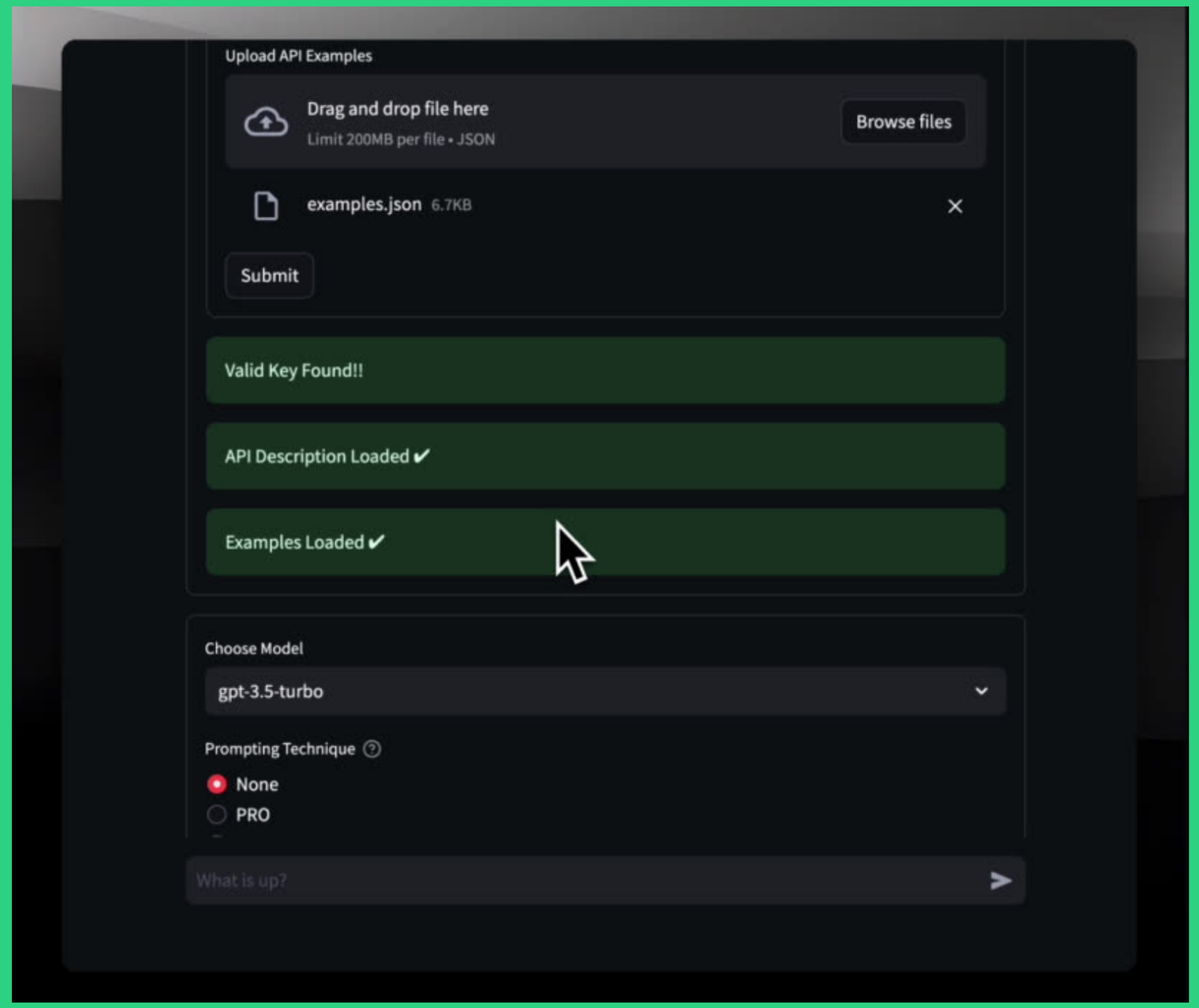
DEVREV

AI AGENT 007

TOOLING UP FOR SUCCESS

DEMO

TM12.0


Upload API Examples
Drag and drop file here
Limit 200MB per file • JSON
Browse files
examples.json 6.7KB
Submit
Valid Key Found!!
API Description Loaded ✔
Examples Loaded ✔
Choose Model
gpt-3.5-turbo
Prompting Technique
None
PRO
What is up?

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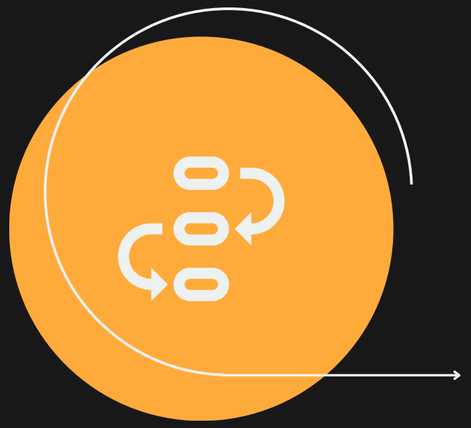
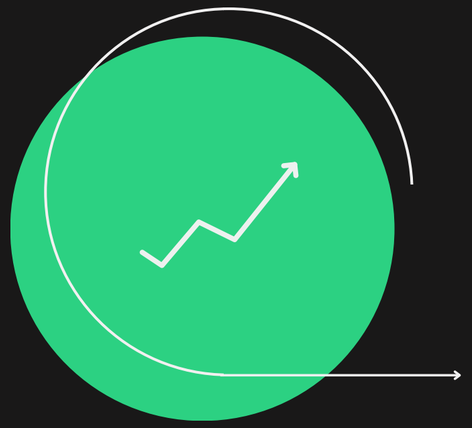
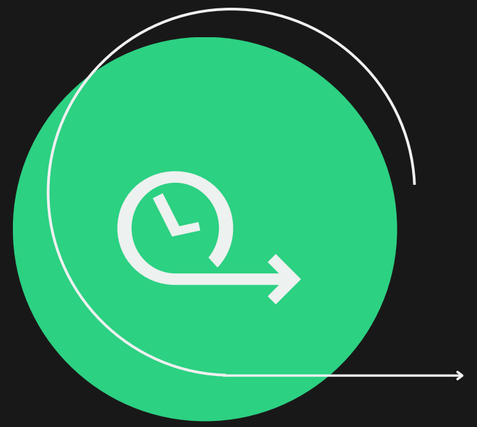


METHODOLOGY



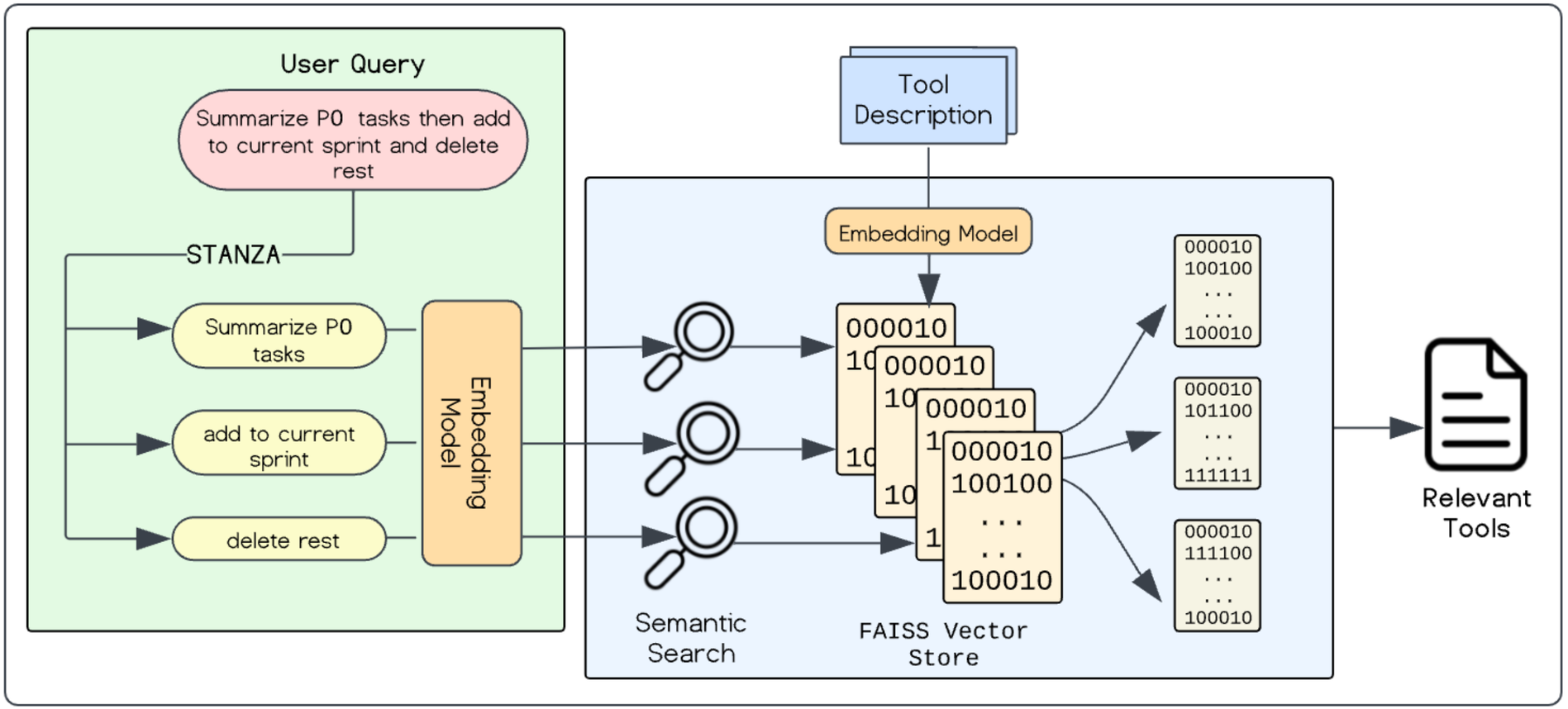
PERFORMANCE



FUTURE SCOPE

METHODOLOGY

TOOL RETRIEVAL



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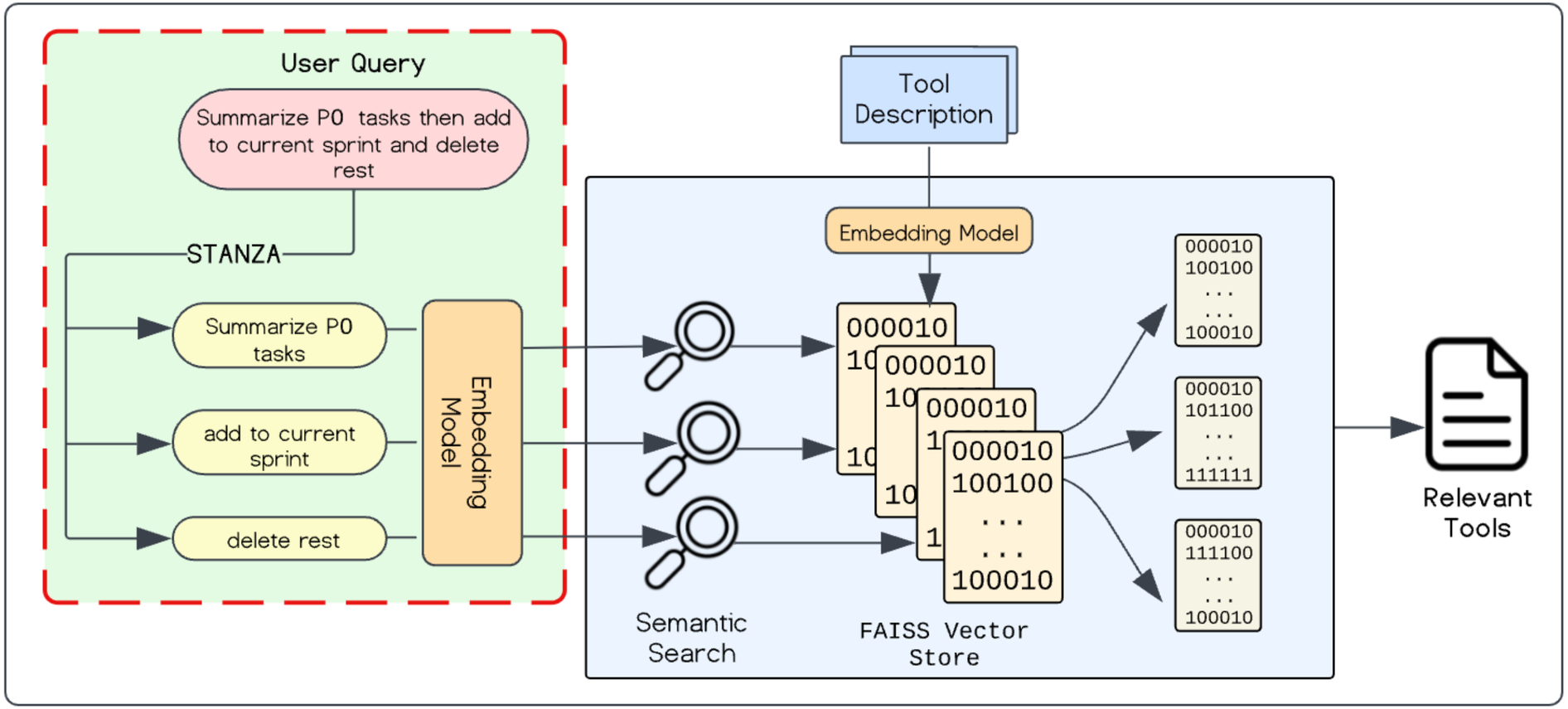

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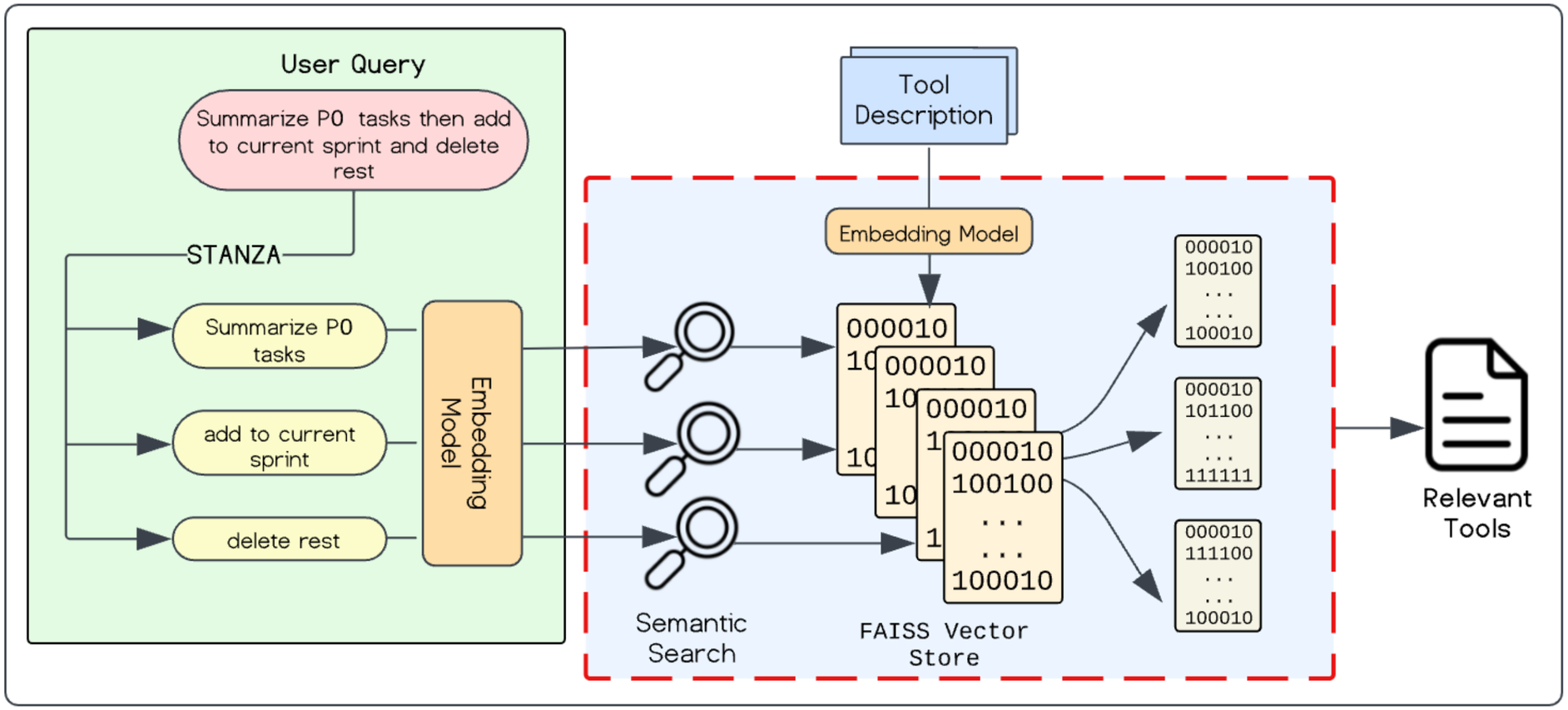

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ANSWER GENERATION

LLM SELECTION

- Chosen Model : **gpt-3.5-turbo**
- Offers best balance between accuracy and cost-efficiency

PROMPTING

- Prompts modulate model responses
- Our Method : **PIRO** Prompting
- Optimzed for **gpt-3.5-turbo**

PIRO PROMPTING

P

PLANNING

Given the list of tools, we ask the model to create an ordered skeleton of tools it needs to solve the user query.

I

IMPROVEMENT

Provided the relevant tools and examples demonstrating their usage, we ask the model to improve its answer and rectify any argument errors

R

REFLECTION

For GPT3.5, the model reflects on its answer based on the given information about tools and their examples, to fix the solution, if required.

O

OPTIMIZATION

Finally, the model optimizes its solution, and removes any redundant API calls, and unnecessary arguments.

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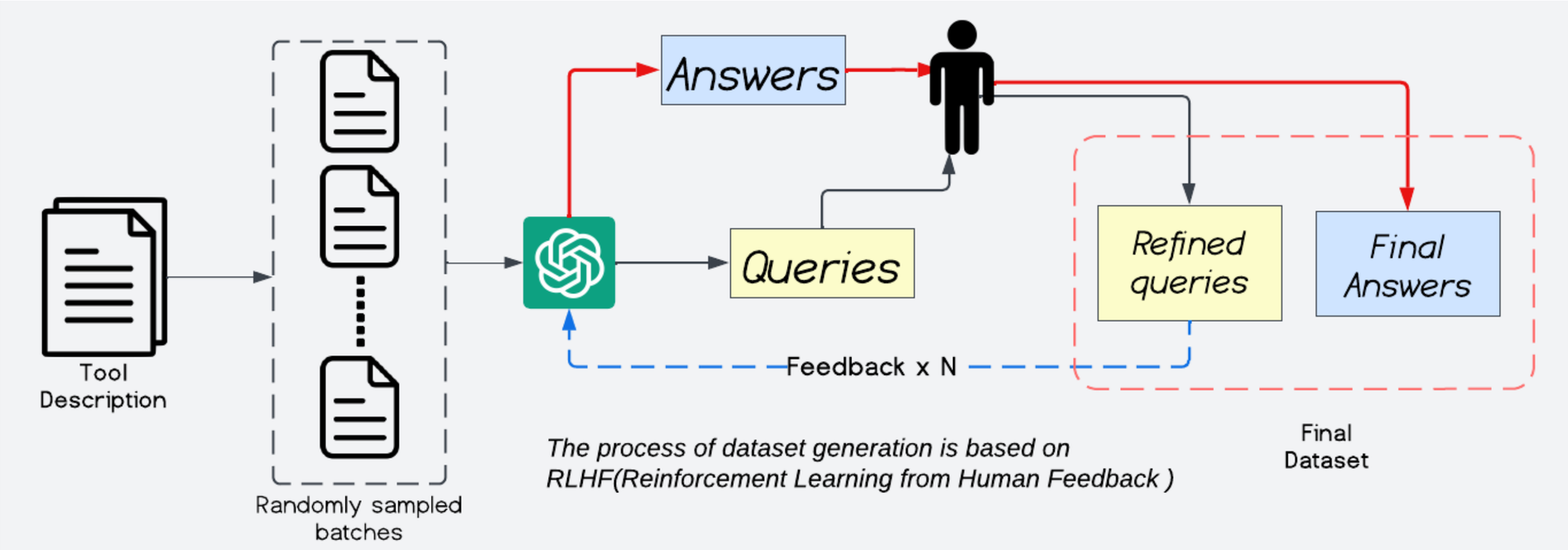
DATASET GENERATION



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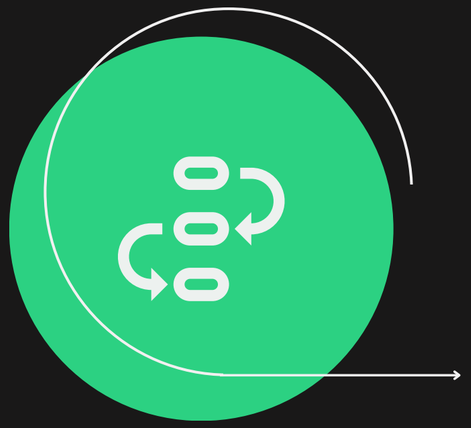
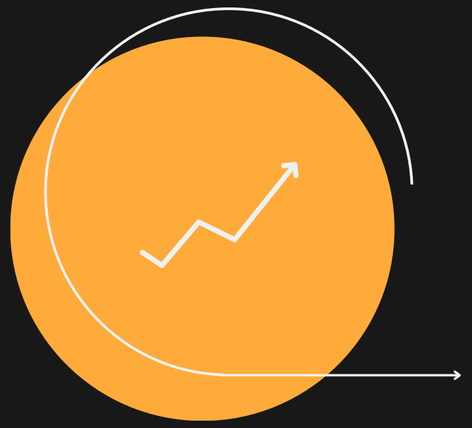
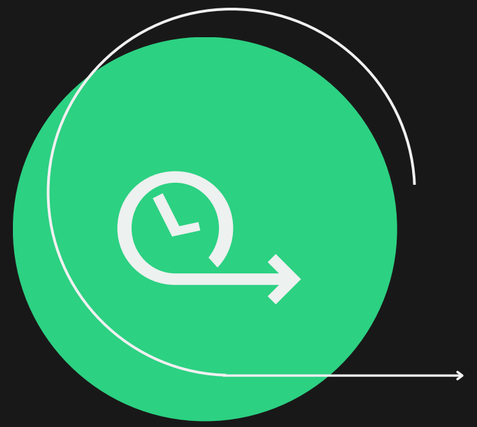


METHODOLOGY

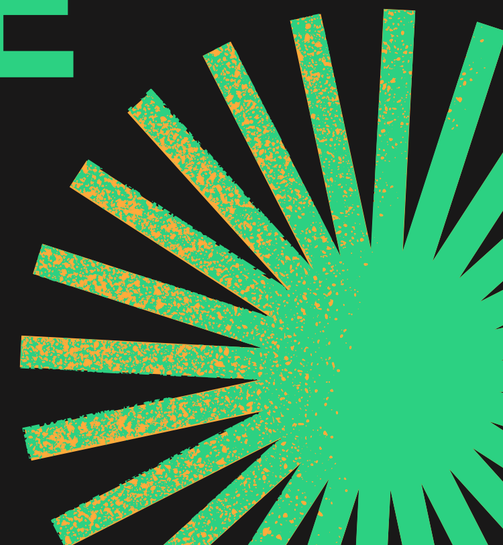


PIPELINE
PERFORMANCE



FUTURE
SCOPE

PIPELINE PERFORMANCE



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OUR PERFORMANCE

AVERAGE INFERENCE TIME

GPT 4 (with PRO)	30s
GPT 4 Turbo (with PRO)	39s
Human Performance	76s
GPT 3.5 Turbo(with PIRO)	**19s**

ACCURACY- D1* DATASET

GPT 4 Turbo	65%
Human Performance	80%
GPT 3.5 Turbo	**65%**

ACCURACY- D2* DATASET

GPT 4 Turbo	26%
Human Performance	46%
GPT 3.5 Turbo	**24%**

* D1 - Smaller DevRev Dataset; D2 - Larger DevRev Dataset

INFERENCE COST

Model Name	Num Tokens	Cost/Query
GPT 4	5000	$ 0.165
GPT 4 Turbo	5000	$ 0.055
GPT 3.5 Turbo	6500	$ 0.007

HOW WE GOT HERE

Baseline	GPT 3.5 Turbo	25%

HOW WE GOT HERE

Baseline	GPT 3.5 Turbo	25%
PRO prompting	GPT 3.5 Turbo	40%

HOW WE GOT HERE

Baseline	GPT 3.5 Turbo	25%
PRO prompting	GPT 3.5 Turbo	40%
PIRO prompting	GPT 3.5 Turbo	55%

HOW WE GOT HERE

Baseline	GPT 3.5 Turbo	25%
PRO prompting	GPT 3.5 Turbo	40%
PIRO prompting	GPT 3.5 Turbo	55%
PIRO prompting+Stanza	GPT 3.5 Turbo	65%

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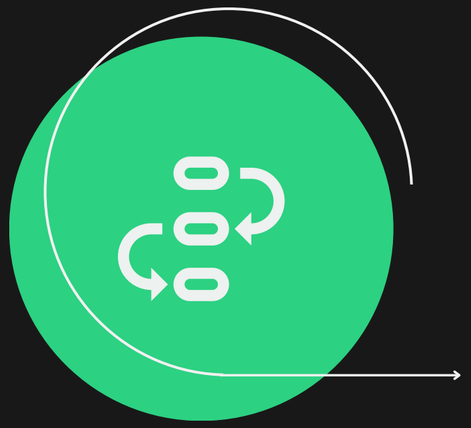
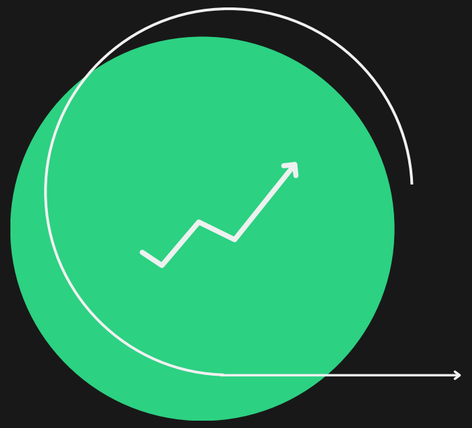
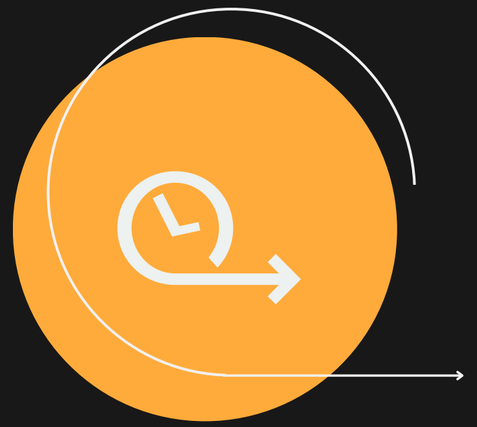


METHODOLOGY

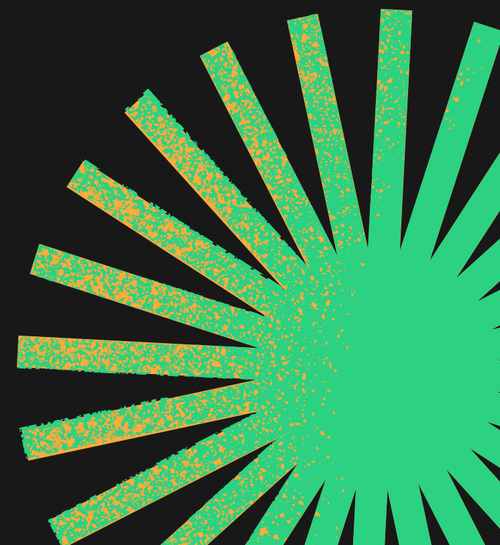


PIPELINE
PERFORMANCE



FUTURE
SCOPE

FUTURE SCOPE



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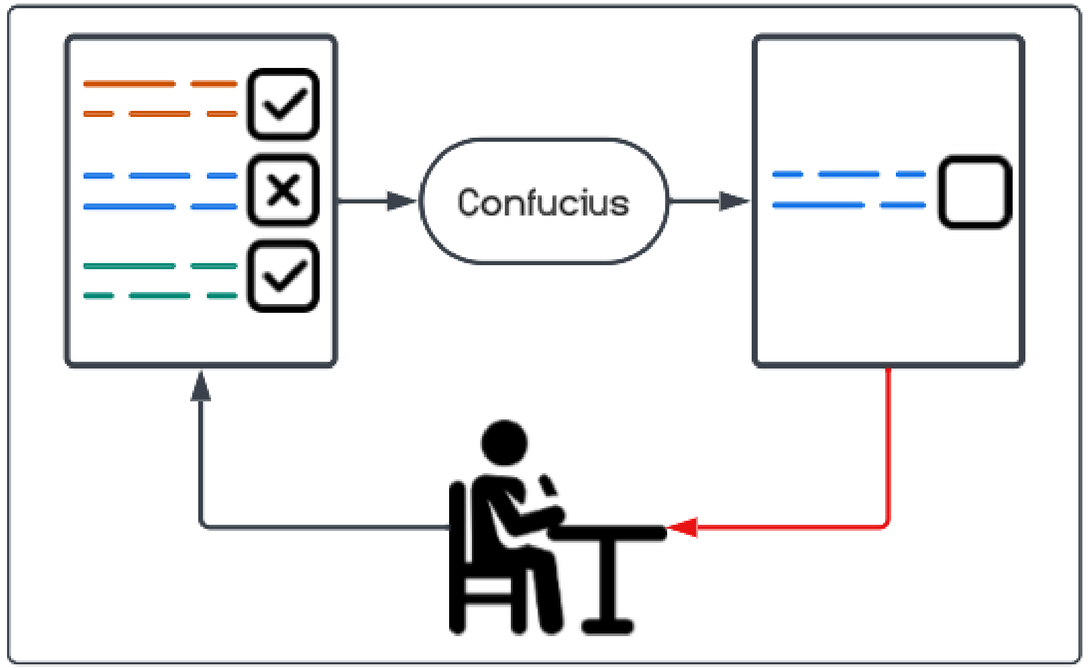
CONFUCIUS



An overview of Confucius

- Confucius is a tool learning framework for LLMs
- Unlike existing self-instruction methods, Confucius takes the complexity of the tool into account during learning
- It emphasizes the tools that the model struggles with to make new test sets
- The model faces more questions based on the hardest tools

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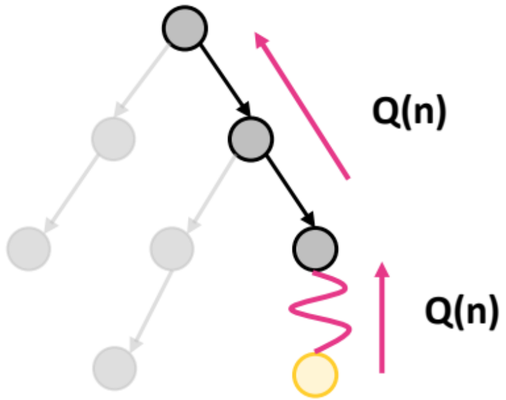
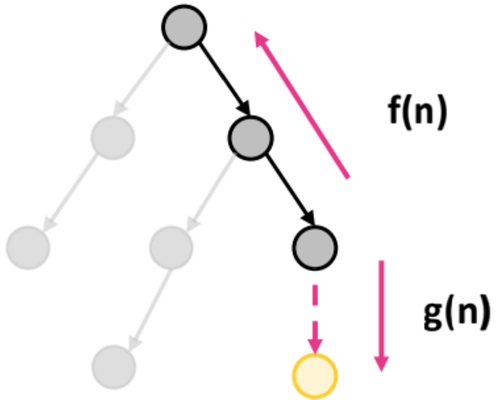
TOOLCHAIN*



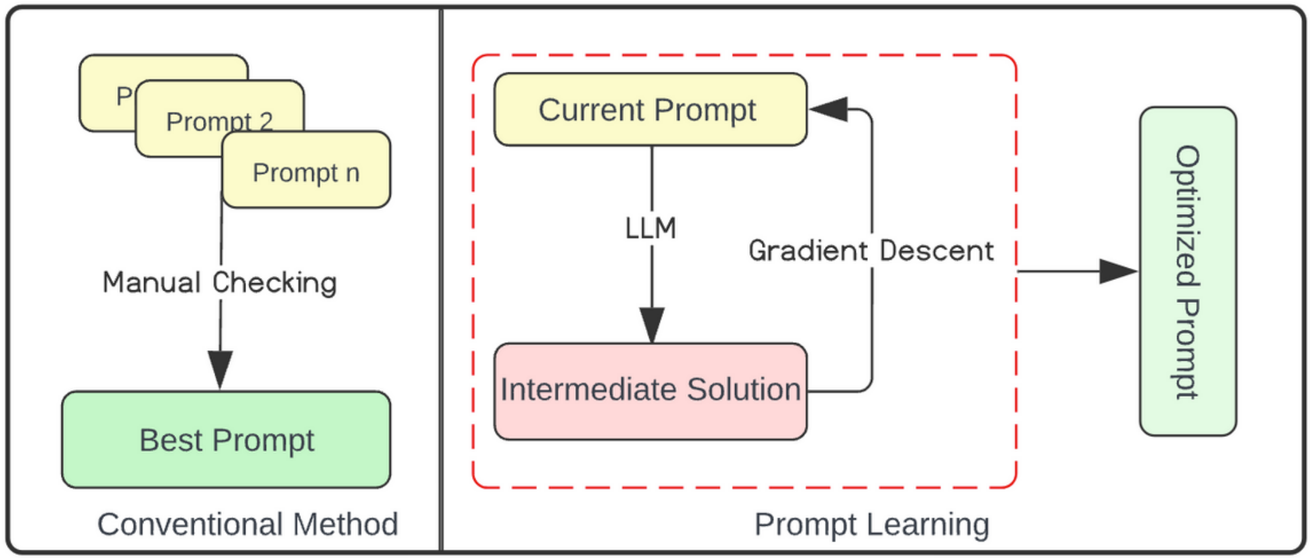
Monte Carlo Tree Search



ToolChain*

- The available search space grows exponentially with the number of APIs.
- Toolchain* aims to make this search efficient.
- It uses the expected future cost to traverse trees.
- It is faster than popular traversal algorithms like DFS and MCTS.
- It also reduces snowball effects where one small error can render the entire solution incorrect.

PROMPT LEARNING



A comparison between prompt learning and the conventional method of prompt tuning

- Prompt learning arrives at the optimal prompt using gradient descent.
- Model weights are frozen, and only prompt parameters are learnt.
- Prompt parameters are learnt through likelihood maximization.
- This is cheaper and more stable than fine tuning.

THANK YOU!

Questions are Welcome

TEAM 80