GraphGeeks

kùzu

Getting Started with BAML and Kuzu: Create graphs from unstructured data using LLMs

github.com/graphgeeks-lab/baml-for-graph-101

PRESENTED BY

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GraphGeeks Workshop

🌎 Online | 20 May 2025

Problem statement

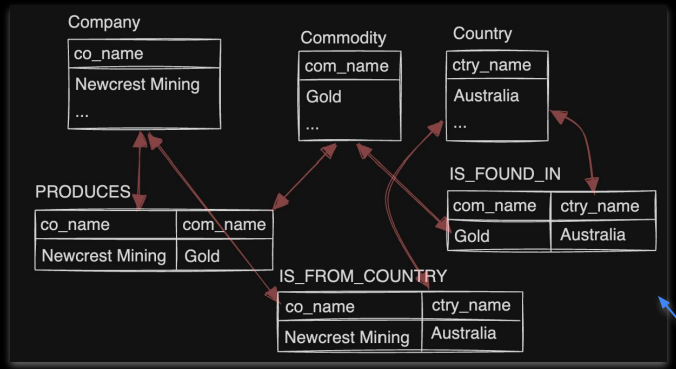
Imagine you are a developer at a financial asset company, with access to a news API feed that updates daily with articles about the various mergers and acquisitions occurring in the mining industry.

Tasks

- Answer questions about connected data (tree structures with hierarchical information)
  - Which companies merged with or acquired other companies?
- Increase the level of autonomy in tracking/analyzing M&A events
  - Signal alert bot
  - Graph RAG-based Q&A system

Data models are interchangeable

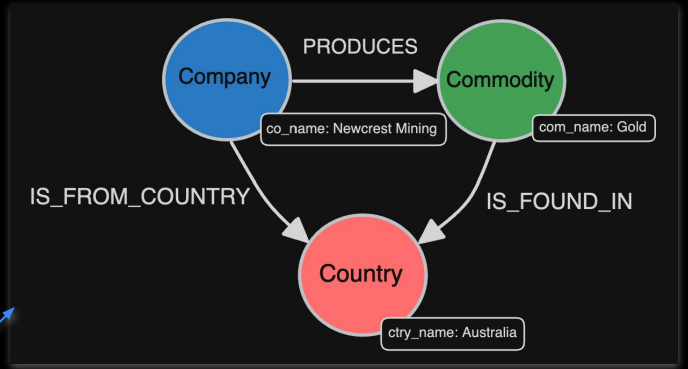
Relational model



Document model

```
[
  {
    "company": "Newcrest Mining",
    "commodities": ["Gold"],
    "country": "Australia"
  },
  {
    ...
  }
]
```

Property Graph model



Tools used in this workshop (code available)

LLM pipeline

An expressive language to get structured outputs from LLMs

boundaryml.com

Graph pipeline

Embedded property graph database with a Cypher query interface

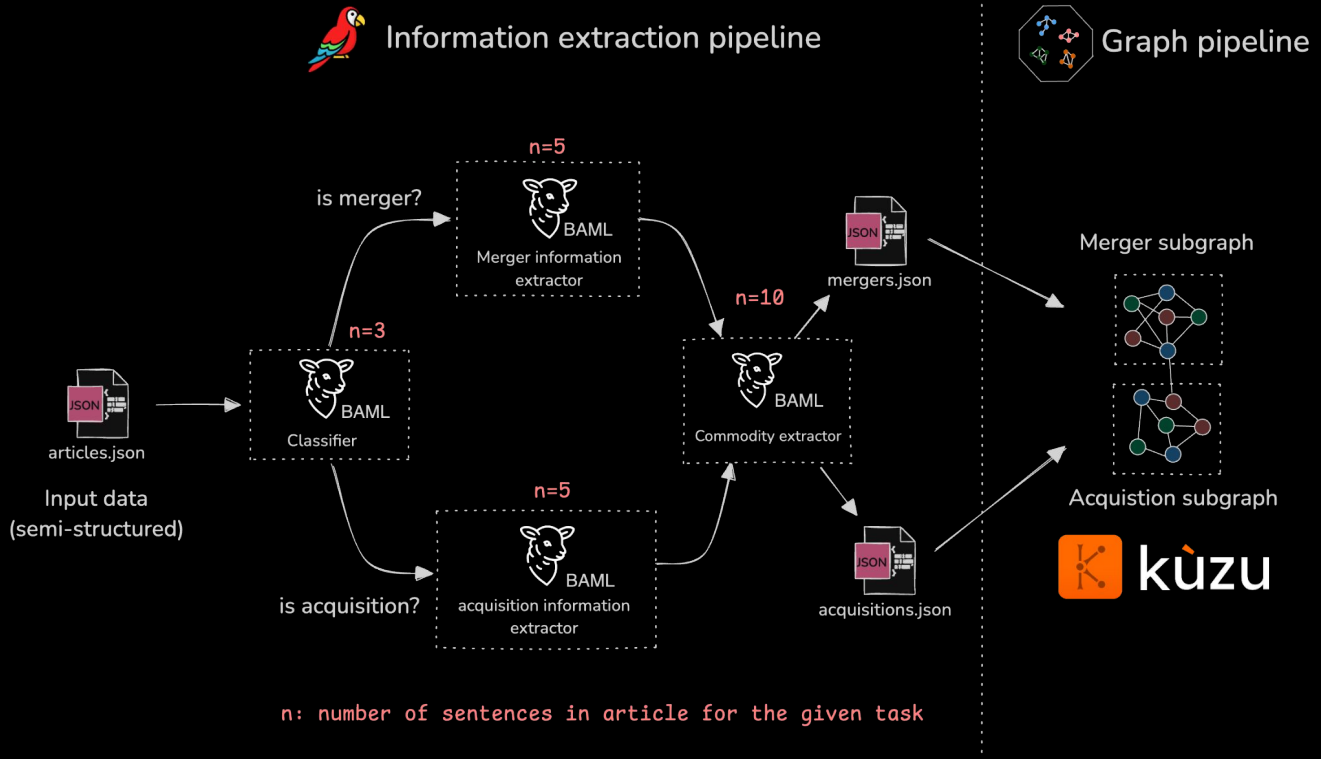
kuzudb.com

See the code and data here: https://github.com/graphgeeks-lab/baml-for-graph-101

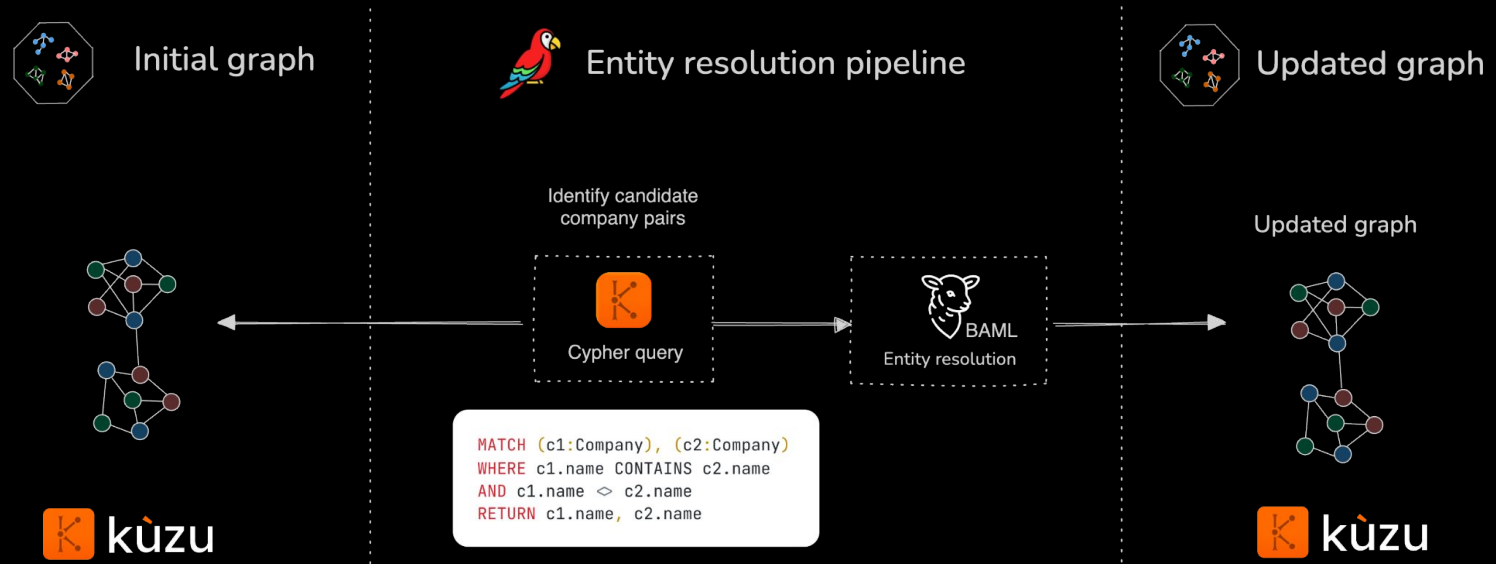
Sample data


```
[
    {
        "id": 1,
        "url": "https://www.australianmining.com.au/elevra-lithium-a-defining-moment-in-north-american-lithium/",
        "title": "Elevra: ‘A defining moment in North American lithium’",
        "date": "2025-04-09",
        "content": "The company to be created through the merger of ASX-listed Sayona Mining and Piedmont Lithium... "
    },
    {
        "id": 2,
        "url": "https://www.mining-technology.com/news/newcrest-mining-pretium-resources-acquisition/",
        "title": "Newcrest Mining completes acquisition of Pretium Resources",
        "date": "2022-03-09",
        "content": "Australia’s Newcrest Mining has closed the acquisition of Pretium Resources, which owns ... "
    },
  ...
]
```

Stage 1: Create initial graph



Stage 2: Improve graph quality



Takeaways

- BAML provides the following key benefits:
  - Powerful & expressive language to express prompting logic
  - Type system for LLMs
  - Fixes LLM outputs to ensure quality structured generation
  - Unit tests for prompts!
- Kuzu provides the following key benefits:
  - In-process, on-disk persistence layer for property graphs
  - Cypher query language for concise joins (for humans and LLMs)
  - Easy data ingestion from various sources
  - Fast & scalable for large graphs

Chat with more graph and LLM developers on the discords!

BAML discord

Kuzu discord