Open Intelligence Agent - Geopolitical Insights at Your Fingertips

Democratizing Access to Global Event Data

The Challenge of Global Event Analysis

Problem Statement:

- Difficulty in gathering reliable global event data.
- Existing resources require specialized knowledge and complex querying.
- Significant time investment to extract meaningful insights.

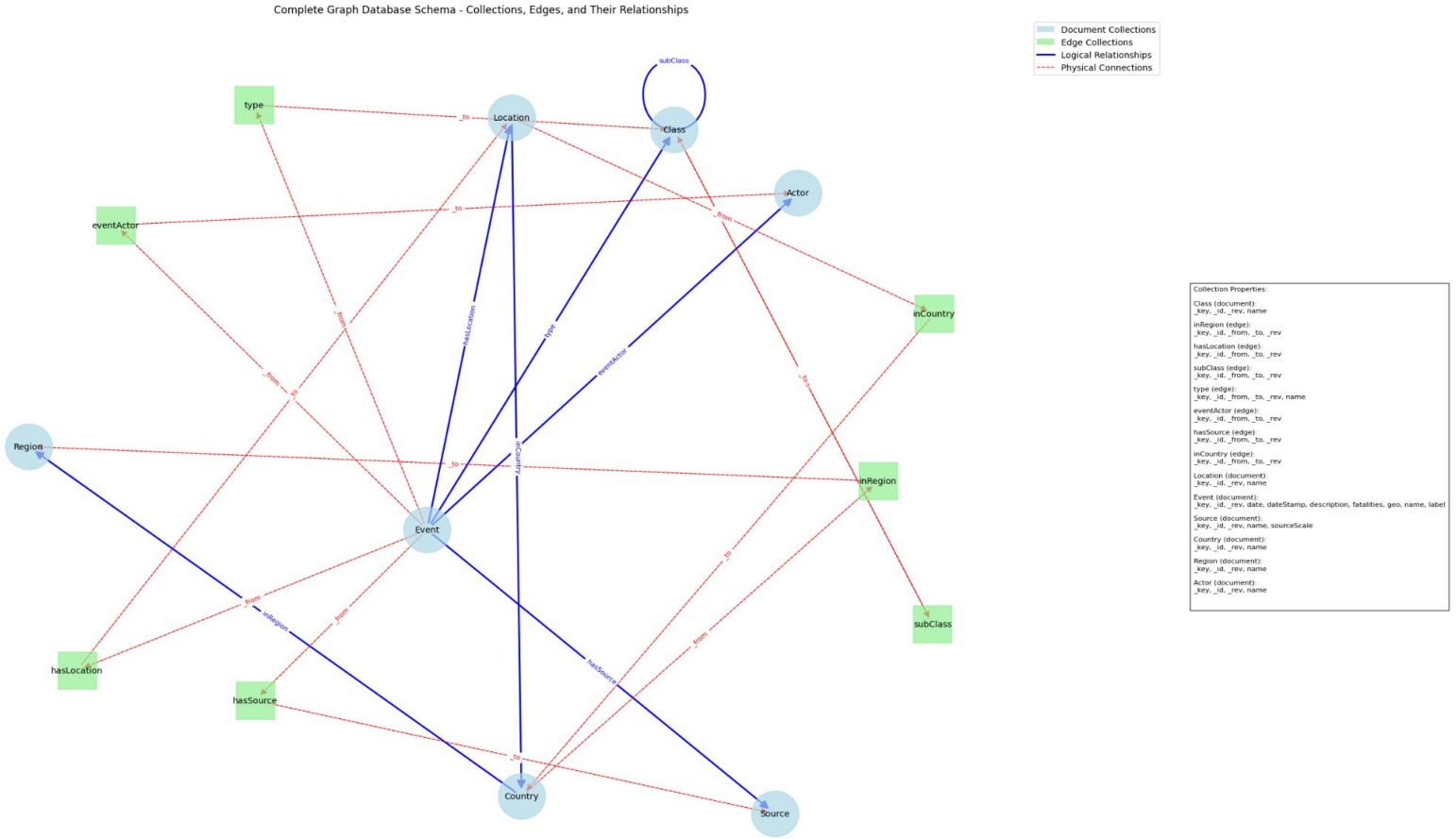
Our Solution: Open Intelligence Agent

- Easy access to geopolitical intelligence information with dataset hosted on ArangoDB and information gathering workflow powered by Agentic AI
- Democratized access where the end user does not require knowhow of advanced querying language. All the information is available at the fingertips with a natural language query

Core Functionality

- Leverages agentic AI with custom tools to query data from ArangoDB cloud using the advanced ArangoDB library.
- Can even leverage GPU for faster inference.
- Provides a summary of events.
- Offers an interactive map for geographical exploration.

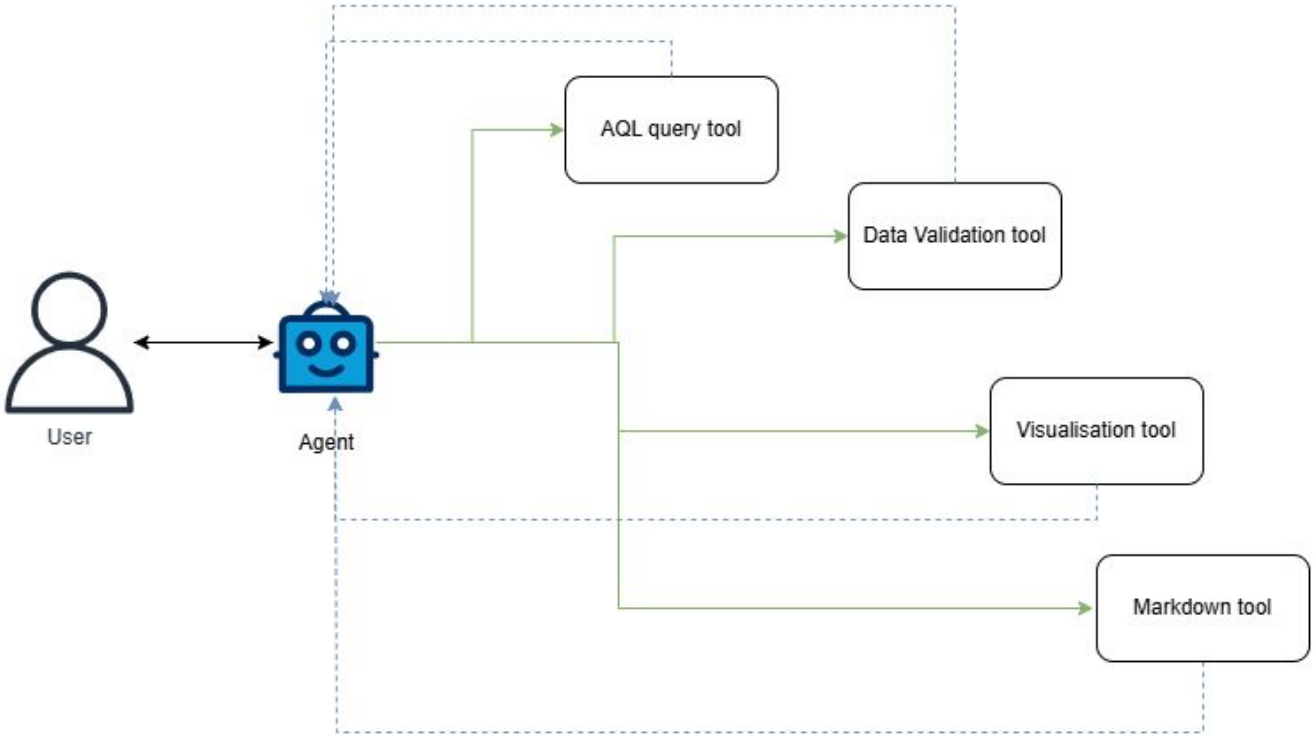
GDELT Open Intelligence



GDELT Open Intelligence

- GDELT is an open dataset that monitors global news media in real-time.
- It captures and analyzes events, themes, emotions, and relationships across countries, organizations, and people.
- Covering millions of articles from various sources, GDELT provides insights into geopolitical trends, conflicts, and societal changes.
- The dataset is widely used in research, journalism, and AI applications for tracking global events and sentiment analysis.

https://github.com/arangoml/arangodb_datasets/blob/main/README.md#GDELT


AQL query tool
Data Validation tool
Visualisation tool
Markdown tool
User
Agent

How We Built It: The Tech Stack

- Pydantic-AI framework (for agent orchestration): Flexible and observable.
- Logfire for Observability.
- Streamlit (for the UI): User-friendly interface.
- Custom tools (for execution python code, data validation, querying Arango DB cloud server using nx-arangodb module
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Agent Functionality

- Custom tools for querying the ArangoDB graph database.
- Validating extracted data.
- Generating interactive maps.
- Generating PDF reports.

Challenges

Data Validation

Critical problem: Incorrect filter used due to misinterpretation of the user query.

Solution: Design a validation tool that checks the dataset for completeness. If incomplete, the agent modifies the AQL query and retrieves the dataset again.

Natural Language Understanding

Problem: Accurately translating vague or ambiguous user queries into precise graph database queries

Solution: Experimented with various prompt engineering techniques and fine-tuned our agent module to improve its ability to understand the nuances of user query.

Achievements We're Proud Of

- Seamless integration of the toolset.
- Effective visualizations that bring the data to life.
- User-friendly experience with complex data structures.

Future Development: What's Next?

- Expanding the Dataset
- Improving Agent Accuracy
- Enhancing Visualization Capabilities
- Adding User Authentication and Collaboration
- Implementing a Feedback Mechanism