

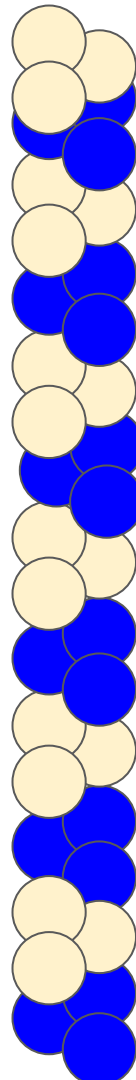
The Intersection of SQL (PostgreSQL) and Large Language Models - Online

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Webinar Objectives

1. Introduce the concept of text & llm
2. Previous approaches to it
3. How LLMs have impact db querying
4. Demo session
5. Get a free api key from vanna
6. Query our db with natural language


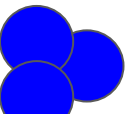


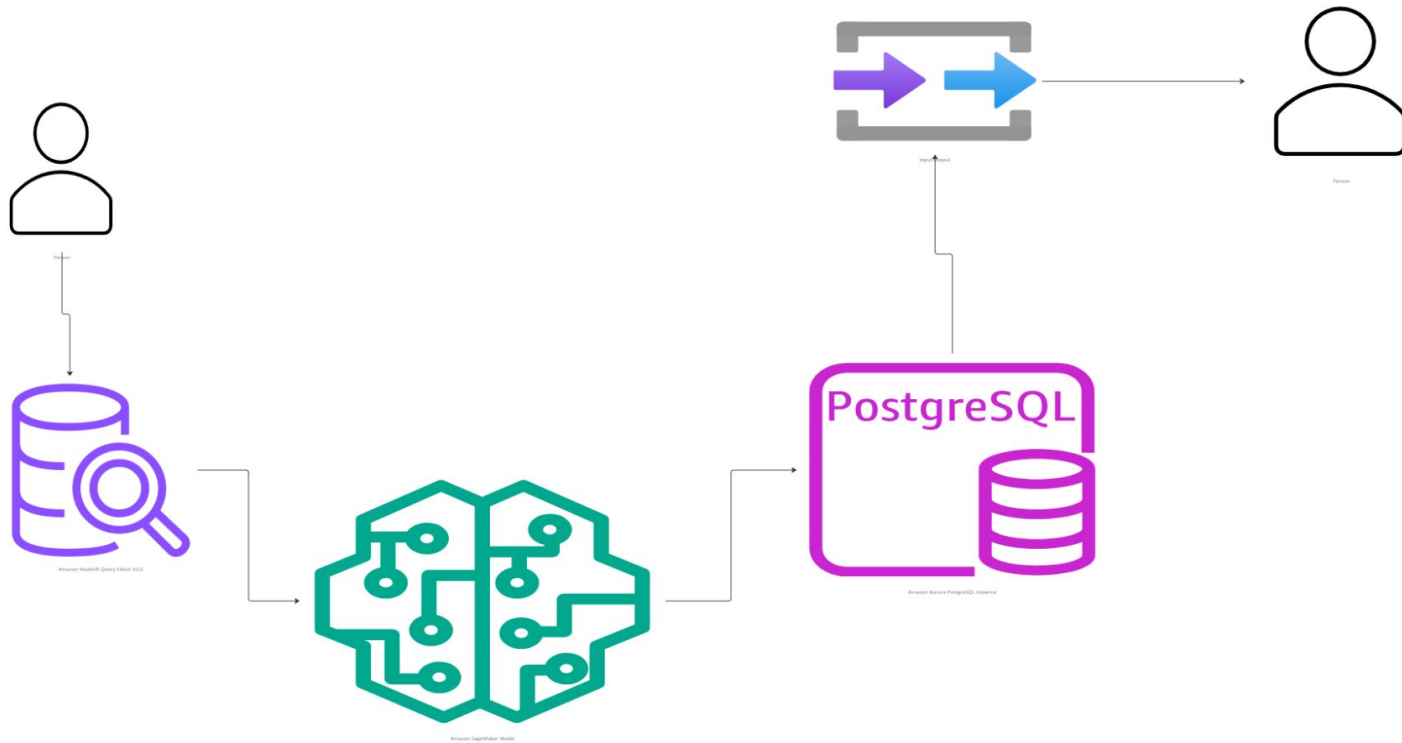


Introduction to the concept of Text to SQL

The concept of using your native natural language to query a database has become more prominent due to the emergence of Large Language Models (LLMs).

The task involves converting the text input into a structured representation and then using this representation to generate a semantically correct SQL query that can be executed on a database.







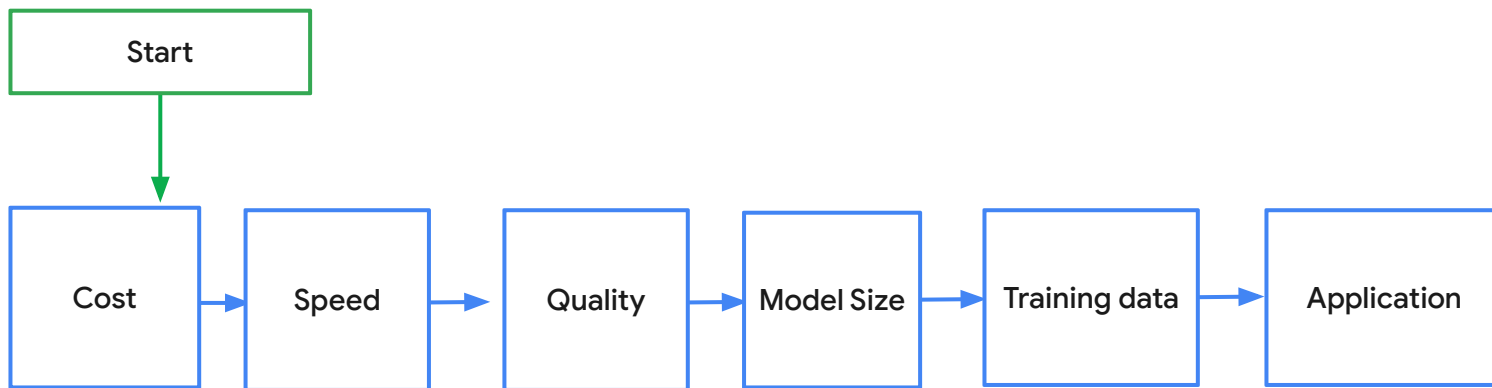
Building a Text to SQL System



What to look out for


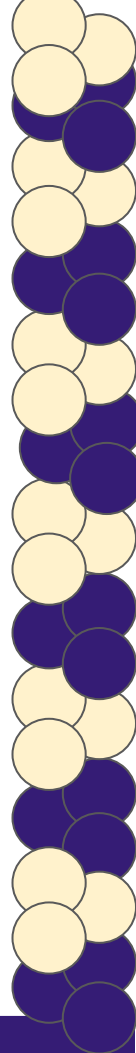

- Model Selection - LLM
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Selecting the right LLM will depend on the following:





What to look out for

- Define the Approach, RAG?
Retrieval Augmented Generation
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What to look out for

- Data Selection
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What to look out for

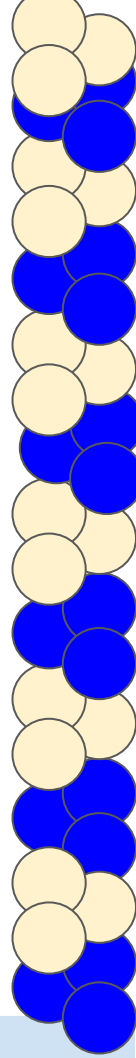
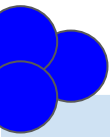
- Customise to your business/environment
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What to look out for


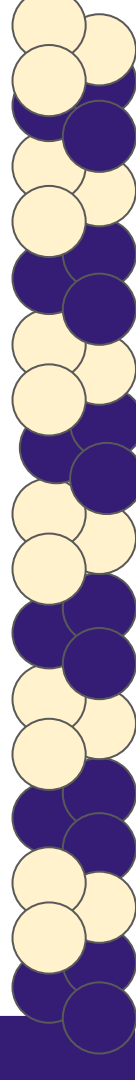
- Feedback
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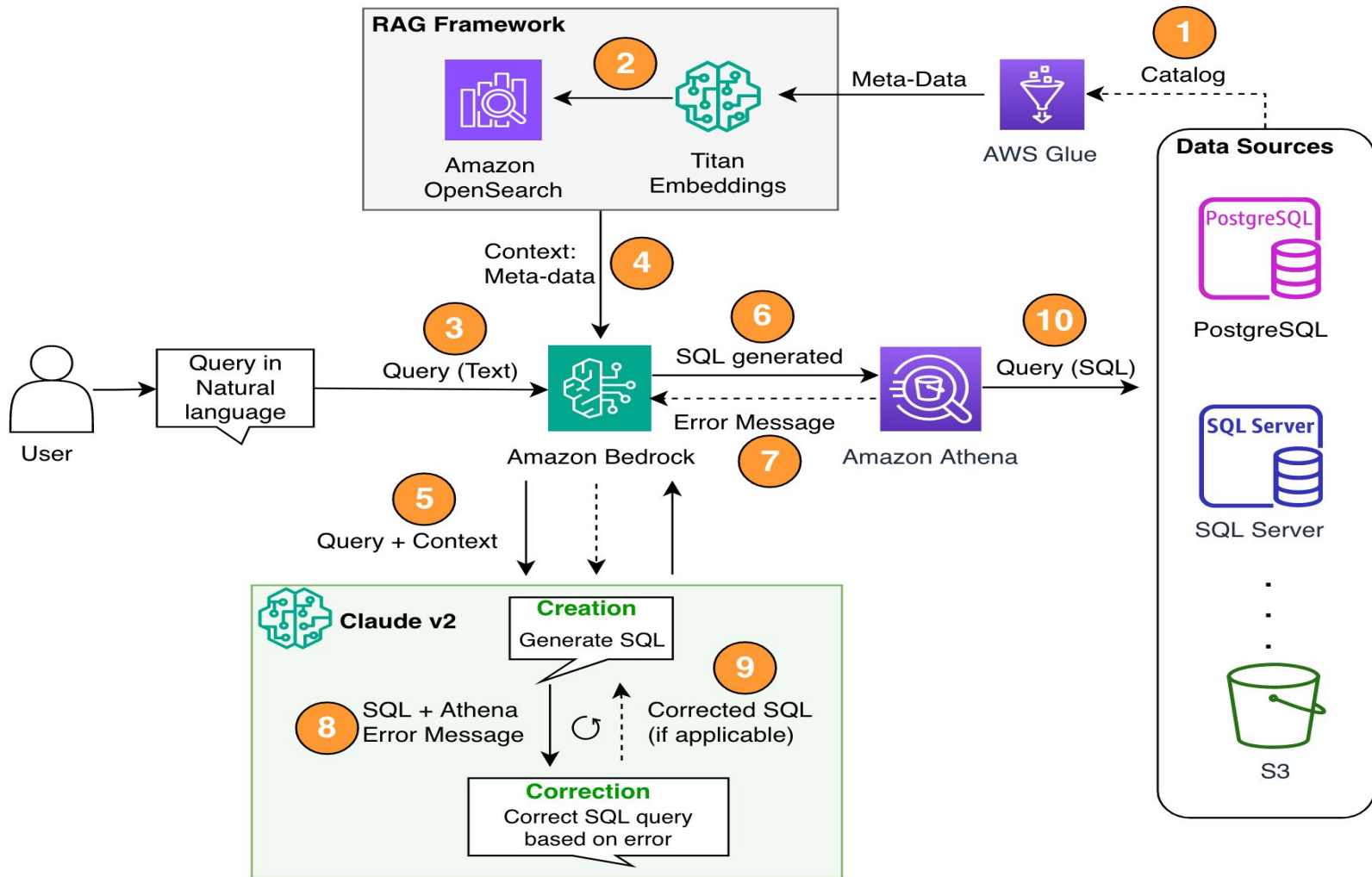
Prerequisites





Prerequisites

- PostgreSQL database system
 - Tables (sample data in your database)
 - Access to LLM
 - Vector Store
 - A Vanna Account - Wrapper
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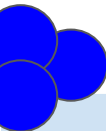


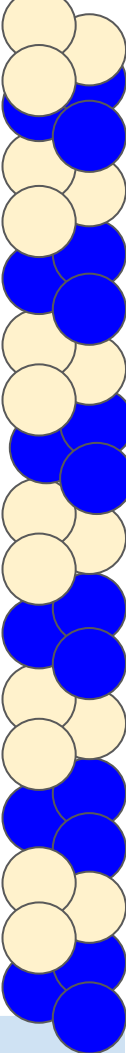


Challenges in Text to SQL



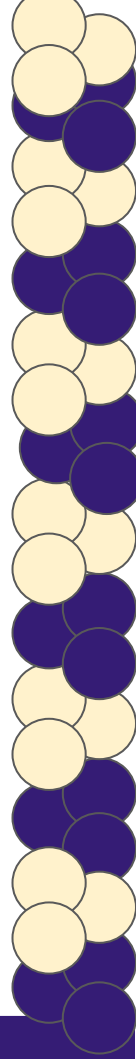

Challenges

- Human language is inherently ambiguous and context-dependent, whereas SQL is precise, mathematical, and structured. This gap may result in inaccurate conversion of the user's needs into the SQL that's generated.
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Challenges

- You might need to build text-to-SQL features for every database because data is often not stored in a single target. You may have to recreate the capability for every database to enable users with NLP-based SQL generation.
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Challenges

- Despite the larger adoption of centralized analytics solutions like data lakes and warehouses, complexity rises with different table names and other metadata that is required to create the SQL for the desired sources.

Thank You

You may follow up with me on Twitter & LinkedIn.

@tolulade_ato

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Resources

<https://docs.datastax.com/en/astra-db-serverless/tutorials/text2sql.html>

<https://aws.amazon.com/blogs/machine-learning/build-a-robust-text-to-sql-solution-generating-complex-queries-self-correcting-and-querying-diverse-data-sources/>

<https://medium.com/pinterest-engineering/how-we-built-text-to-sql-at-pinterest-30bad30dabff>

<https://medium.com/querymind/building-your-own-text-to-sql-steps-and-requirements-ab276826c882>