

Building Natural Language User Interfaces over Analytics Platforms

Using LLMs and the Semantic Layer to Extend Analytics Platforms

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Section 1: Introduction

In the rapidly evolving landscape of knowledge work platforms, the surge in end-user numbers presents both opportunities and challenges for organizations. Training new users on intricate analytics tools is not only a resource-intensive process but also time-consuming. Recognizing this, the integration of a natural language interface into analytics products emerges as a transformative solution, promising a significant reduction in training time and a simultaneous boost in productivity. As technical leaders in Fortune 500 companies navigate the complexities of managing expanding user bases, leveraging advancements in Large Language Models (LLMs) becomes pivotal for staying ahead of the curve. This article delves into the strategic adoption of LLMs, exploring how they serve as a linchpin for next-generation applications, enhancing enterprise value by seamlessly blending human-like text generation with domain-specific knowledge, ultimately redefining the landscape of reasoning applications in 2024.

Section 2: Market Trends

As technical leaders in Fortune 500 companies seek innovative solutions to harness the burgeoning potential of knowledge work platforms, Large Language Models (LLMs) emerge as a transformative force in shaping the next generation of applications. These advanced models showcase remarkable capabilities, ranging from generating human-like text and answering complex questions to assisting with language translation, code writing, summarizing articles, and even creating conversational agents. The intrinsic value of LLM applications for enterprises is further amplified by their ability to seamlessly integrate with and leverage knowledge from enterprise data, including database lookups and document reviews.

In 2024, investing in LLMs for reasoning applications has become a strategic imperative for forward-thinking organizations. The impact of LLMs on enterprise productivity, market share, and profitability is profound, making it a key

driver for competitive advantage. This section explores the tangible benefits of incorporating LLMs into the technological fabric of Fortune 500 companies, emphasizing the strategic advantage they confer. Additionally, it delves into the potential risks and costs of inaction, addressing the concerns of late adopters striving to catch up in the fast-paced technological landscape. To effectively bridge the gap between private knowledge and the reasoning power of LLMs, this article introduces the RAG design pattern, providing technical leaders with a roadmap for building next-gen AI applications that leverage the full potential of these language models.

Section 3: Challenges

In the pursuit of seamlessly integrating Large Language Models (LLMs) into the fabric of analytics products, technical leaders face a myriad of challenges. Among these challenges, the design and implementation of user interfaces for applications stand out as a significant hurdle. This process is not only inherently expensive but also demands end-users to undergo specialized training for each application, contributing to prolonged onboarding times and increased costs. Compounding this issue is the expectation in some cases that analysts should possess knowledge of a programming language, introducing an additional layer of complexity to the usability of analytics tools.

While SQL boasts the broadest adoption within the analyst community due to its user-friendly nature, training large numbers of new users on SQL remains a time-consuming and expensive endeavor. Recognizing these challenges is pivotal for technical leaders navigating the landscape of knowledge work platforms. This section aims to shed light on the obstacles associated with user interface design and skill requirements, paving the way for a strategic exploration of how LLMs can offer a solution to streamline user interactions through Natural Language User Interfaces (NLUIs). By overcoming these challenges, organizations can not only reduce training overhead but also enhance the accessibility of analytics tools, ultimately driving productivity gains within their teams.

Section 4: Using LLMs to build Natural Language User Interfaces

Addressing the challenges outlined in Section 3, the integration of Large Language Models (LLMs) into analytics products introduces a paradigm shift towards Natural Language User Interfaces (NLUIs). By leveraging LLMs, organizations can transcend the barriers associated with traditional user interfaces, offering end-users the ability to interact with analytics tools in plain English. This transformative approach allows for providing clear and concise answers to questions posed by end-users without the need for specialized training in a particular application or programming language.

The integration process involves harnessing the analytical prowess of LLMs, seamlessly intertwining them with private datasets. These LLMs are not only adept at analyzing and reasoning through plain English questions but also possess the capability to determine the type of information required for each query. Subsequently, they generate comprehensive plain English answers based on the insights extracted from the organization's private data. This approach not only reduces the training time for end-users but also significantly enhances productivity by democratizing access to analytical tools. By adopting NLUIs powered by LLMs, technical leaders can usher in a new era of user-friendly and efficient analytics experiences, ultimately paving the way for the development of next-gen AI applications.