indium
Make Technology Work

STREAMLINING DATA REQUEST RESPONSES: NLP-DRIVEN ASSISTANT FOR MERCHANT ACCOUNT MANAGERS

PROJECT OVERVIEW

Indium developed a comprehensive search engine integrated with the client's data ecosystem, providing insights and outputs based on historical data. The system targets Merchant Account Relationship managers who handle a wide range of data requests regularly. Currently, the Account Managers rely on Data Analysts for the necessary information and analysis, leading to potential delays caused by data exploration, intricate logic design, brainstorming, and time zone differences between the teams. The search engine built by Indium streamlined this process, enabling faster and more efficient access to essential data and analysis for improved decision-making.

SOLUTION DELIVERED
Advanced Analytics, Data Engineering,

CLIENT DOMAIN
Digital Native/ ISV

KEY HIGHLIGHTS

- **95%** increased productivity owing to automated data exploration and analysis which in turn enhanced the efficiency of account managers and data analysts.

- Integrated the application seamlessly with the client's environment, which resulted in **Zero resource utilization** for additional development, maintenance, or hosting.

ABOUT CLIENT

The client is a global technology giant that operates through a mobile app. With a presence in over 900 metropolitan areas worldwide, the client has revolutionized the transportation industry, providing convenient and affordable alternatives to traditional taxis. The client is also actively expanding into other logistics areas.

BUSINESS CHALLENGES

- The client faced the challenge of finding the most suitable and automated solution for the last-mile operations.
- Previously, the data analyst team had been manually handling data requests, analysis, and dashboard generation over an extended period.
- Recognizing the significance of the historical data and its correlation to query solutions, the Client wanted to leverage these data to improve operational efficiency.

BUSINESS REQUIREMENTS

- Develop a search engine capable of generating historical query links in response to new requests, utilizing state-of-the-art NLP techniques fine-tuned for optimal accuracy.
- Integrate the output of the NLP models seamlessly with the client's environment to ensure efficient and effective utilization of the search engine.
- Provide the solution in the form of a Chatbot to facilitate data retrieval, as it was observed that users are more accustomed to seeking information through chat-based interactions.

SOLUTION HIGHLIGHTS

Leveraged latest NLP techniques which reads historical query links using Presto and Spark when a new request is received and fine-tuned them to achieve maximum accuracy.

Bot Execution

- Indium recommended the implementation of a chatbot using Python on the client's chat platform. This enabled faster interactions between Merchant Account Managers and Data Analysts, resulting in quicker responses to their requests.
- Maintained the existing system of asking data requests to accommodate the 800+ business managers' familiarity with the process, avoiding potential friction in transitioning to a new search engine platform.
- Integrated the NLP model's output with the employee chat platform of the client, allowing seamless data request interactions between account managers and data analysts.
- Leveraged the messaging platform's convenient plug-ins through Go Lang programming to enhance the Chat Bot's utility, making it an efficient tool for tracking and measuring performance.
- Ensured testing and production processes became fully automated, eliminating manual intervention with the integration of CI Tool and Developer code into the client environment.

Zero Resource Application

- Successfully integrated the NLP model's output with the Client environment chat application, eliminating the need for hosting on a separate web application.
- Achieved zero development and maintenance requirements for Chat Bot execution, minimizing operational efforts and costs.
- Designed the model output in such a way that it is independent of external data tables or servers, allowing easy future enhancements without external dependencies.
- Generated performance reports for Bots within the messaging platform and client ML environment, recorded client answers, and automated incremental training data updates.
- Ensured future execution issues would primarily be related to engineering matters, facilitating prompt resolution by any engineering team.
- Prioritized zero resource utilization to eliminate manual dependencies, reduce potential errors, and optimize costs for the project.

BUSINESS IMPACT

- **Seamless Integration:** In a seamless manner, the ChatBot is integrated with the client's existing employee chat platform, ensuring a smooth transition without disrupting established data request processes.

- **No manual effort:** Eliminated the need of a backup resource to maintain the application, as the product is seamlessly integrated into the Client environment, giving the impression of an in-house creation.

- **Improved Efficiency:** Demonstrated the value of deep exploration of the Client data ecosystem and a commitment to automation, resulting in approximately 95% of ChatBot recommendations being valuable to analysts in efficiently handling data requests.

- **Increased Revenue:** Generated substantial revenue for the Clients in a short period, bringing great satisfaction to the team and showcasing the effectiveness of the deployed solution.

- **Potential for Expansion:** The successful deployment and performance of the ChatBot opened doors for the client to explore similar plug-and-play ChatBots for other business applications and territories, signaling promising growth opportunities.

TECH STACK

python

Spark

presto

GO

ABOUT INDIUM

Indium Software is a fast-growing Digital Engineering company, focused on building modern solutions across Applications, Data, and Gaming for its clients. With deep expertise in next-gen offerings combining data and applications, Indium offers a wide range of services including Product Engineering, Low-Code development, Data Engineering, Ai/ML, Digital Assurance, and end-to-end Gaming services.

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