

## Project 3: LLM Integration Quality Monitoring (LLM-IQM)

### Company Overview:

Analytical Data Systems empowers businesses by providing state-of-the-art software products, data processing systems, and AI-driven analytics solutions. Our experts are passionate about enabling companies to make informed decisions, optimize operations, and drive growth using data-driven insights. As a computer science student at a top engineering school, you have a unique opportunity to participate in our summer project, which aims to equip you with the skills and experience necessary to excel in the highly competitive world of data analytics, AI, and software development. Join us in our quest to revolutionize the way businesses harness the power of data and technology to unlock new opportunities, maximize value, and shape the future.

### Description:

In this project, participants will collaborate to develop the Large Language Model Integration Quality Monitoring (LLM-IQM) system, a cutting-edge solution designed to evaluate and monitor the quality of LLM integrations. The focus will be on identifying relevant metrics and benchmarks, creating back-end utilities and tools for monitoring and reporting, and implementing a robust monitoring system that can be tested with various LLM integrations.

**Technology:** GPT-4, Langchain, Milivus or PineCode, Node, React, Python

**Open Source Starting Point:** <https://github.com/mayoear/gpt4-pdf-chatbot-langchain>

### Objectives:

1. Identify relevant metrics and benchmarks for LLM integration quality: Students will work together to research and establish a comprehensive set of metrics and benchmarks to evaluate the quality of LLM integrations. These metrics should encompass aspects such as performance, accuracy, and efficiency.
2. Develop back-end utilities and tools for monitoring and reporting on integration quality: Participants will design and build back-end utilities that support the LLM-IQM system, including data collection, processing, and evaluation tools. These utilities will enable seamless monitoring and reporting on LLM integration quality across various applications.
3. Implement a monitoring system for LLM integrations: The team will develop a robust monitoring system that can track and evaluate LLM integration quality based on the established metrics and benchmarks. The system should be adaptable to add and track various quality metrics.
4. Test and evaluate the system with various LLM integrations: To assess the effectiveness of the LLM-IQM system, participants will test it across a range of use cases, such as text generation, summarization, or cross-document/source analysis. This testing will provide valuable insights into the system's performance and potential areas for improvement.

### Why this project:

The LLM-IQM project offers a unique opportunity for students to explore the world of large language models and contribute to improving their quality and performance. Students will gain hands-on experience with cutting-edge technologies and techniques, applying their skills to real-world challenges in natural language processing and artificial intelligence.

By participating in this project, students will not only develop valuable technical skills but also foster critical thinking, problem-solving, and collaboration abilities. The LLM-IQM project is a fantastic opportunity for ambitious computer science students to showcase their talents, make a meaningful impact in the field of AI, and lay the foundation for a successful career in the technology industry.

**IP:** I encourage students to leverage any learning or know-how gained on these projects for their own use. However, any code or data used in the development of the project will remain the property of Analytical Data Systems.