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Global Risk Analytics Engine

Github Link

Job Description

Junior Data Engineer at Kharon. I selected this job because it aligns with my passion for using data to solve complex problems, particularly in the area of security. This position is directly aligned with my career objectives of becoming a data engineer. I am deeply interested in this job because it offers the chance to work on meaningful projects that not only require high technical proficiency but also have a significant impact on global business integrity and security.

Problem

Develop a system that uses financial transaction data to identify and analyze patterns that may indicate risks such as money laundering, sanctions violations, or other financial crimes. Kharon's core mission involves managing and mitigating risks associated with global financial transactions. My project will support this by providing advanced analytical tools to detect and understand these risks. The problem is well-suited for SQL given its capabilities for managing and querying large datasets. Tableau will enable the clear presentation of complex data, making the insights accessible to stakeholders.

Data Sources

Financial Transactions API: Provides real-time data on global financial transactions. The API will deliver structured data including details on transaction amounts, parties involved, and geographical information. Sanctions List Web Scraping: Extracts data from international regulatory bodies' websites that maintain updated sanctions lists. Python scripts using libraries like BeautifulSoup to scrape sanctions data, which will be crucial for cross-referencing with

transaction data to identify potential risks. They will provide the necessary data to identify transactions that might violate regulations or indicate criminal activity.

Solution

Merge API and scraped data into a comprehensive database using SQL. Develop SQL queries to identify discrepancies and patterns indicating risk, such as unusual transaction volumes or transactions linked to sanctioned entities. Build dashboards in visualization tools to dynamically display the data, allowing users to explore patterns and drill down into specific transactions. Queries to segment data by geographical location and transaction type, aggregate queries to identify trends, and join operations to cross-reference transactions against sanctions lists. Use line charts to show trends over time, heat maps for geographical risk distribution, and network graphs to visualize connections between transaction entities.