**Architecture Documents**

**1. Data Sources:**

* **General Ledger (GL) Data** (Historical & Current)
* **I-Hub / UB Data** (Historical & Current)
* **Trade Data** (Catalyst & Impact systems)

**2. Data Processing & Transformation:**

* **Extract:** Read data from Excel
* **Transform:** Compute differences in quantities, prices, and balances
* **Load:** Store transformed data for anomaly detection

**3. AI-Based Anomaly Detection:**

* Use **historical patterns** to detect expected vs unexpected breaks
* Apply **statistical analysis & ML models** (e.g., standard deviation, Isolation Forest)
* Classify as **Match, Expected Break, or Anomaly**

**4. Alerting & Reporting:**

* **Generate a report** (Excel) with anomalies and comments
* **Send email notifications** to respective teams when an anomaly is detected

**5. Insights:**

* **Enable drill-down analysis** for business users

**High Level Flow Diagram:**

Data Sources

(GL, I-Hub, UB)

Reporting & Alerts

(Excel, Email)

Data Processing

(Compute Deltas: Pricing Diff, Amount Diff, Quantity Diff)

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