Part D: Approach for Integrating Unstructured Data

The two types of unstructured data our team is interested in integrating are customer reviews and video footage of drive-throughs.

1. Customer Reviews

Customer reviews are unstructured textual feedback from platforms such as Yelp, Google Reviews, and the Starbucks App. They provide insights into customer satisfaction, preferences, and complaints, as well as perceptions of Starbucks' products and services.

Customer reviews give Starbucks direct access to authentic customer opinions, enabling the identification of trends, issues, and areas for improvement. This feedback can inform product innovation, customer service enhancements, and targeted marketing campaigns, ultimately improving customer satisfaction and loyalty.

To integrate customer reviews effectively into the data ecosystem:

- **Data Collection:** Use APIs or web scraping to gather reviews from multiple platforms.
- **Processing:** Apply Natural Language Processing (NLP) techniques to analyze the reviews, extracting insights such as sentiment analysis, common themes, and key topics.
- **Storage and Analysis:** Structure the processed data for integration into the centralized data warehouse, linking it with existing customer data for comprehensive analysis.

2. Drive-Through Footage

Video footage from drive-through cameras, capturing data on vehicle flow, customer interactions, and staff performance. This unstructured data offers real-time insights into the efficiency and effectiveness of Starbucks' drive-through operations.

Analyzing drive-through footage helps Starbucks measure critical metrics such as vehicle count, average wait time, and peak traffic hours. This data is essential for optimizing operations, improving customer experience, and increasing overall throughput at drive-through locations.

To integrate drive-through footage effectively into the data ecosystem:

- **Data Processing:** Use video analytics tools powered by machine learning to convert raw footage into actionable metrics such as wait times and vehicle counts.
- **Data Linkage:** Integrate these metrics with structured data sources, such as staffing schedules, sales data, and weather patterns, to create a holistic view of operational performance.
- **Storage and Analysis:** Store the extracted metrics in a centralized data warehouse, enabling advanced analytics and performance dashboards for decision-making.