

# SPOTIFY WRAPPED REFLECTION

Stream Analytics

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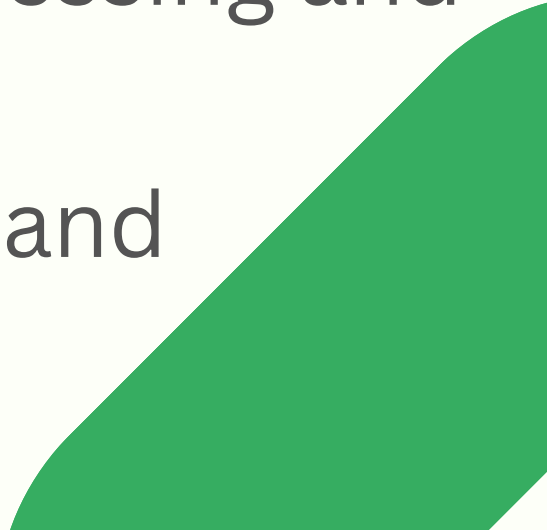


# PROCESS & DISCUSSION

## Milestone 1: Simulation

- Strong AVRO schema for Spotify Wrapped
- Simulated time-ordered data representing user interactions
- Detailed model of song runs and user behavior

## Milestone 2: Real-Time Analysis

- Shift to analyzing simulated data in real-time
  - Utilized Kafka for streaming data ingestion
  - Employed Spark for data processing and analysis
  - Azure Queues for segmenting and analyzing user behavior
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# PROCESS & DISCUSSION

## Challenges Faced

- **Integration Complexity:** Harmonizing systems like Spark, Kafka, and Azure Queues
- **Performance Optimization:** Overcoming hurdles in Kafka and Spark for efficient processing
- **Windowing Challenges:** Balancing fixed and sliding windows for accurate analysis
- **Synthetic Data Limitations:** Addressing shortcomings in generating meaningful insights

# MAIN LEARNINGS

- **Listening Patterns Analysis**
  - Identified regional trends and preferences
  - Explored user behavior segmented by personality types
  - Revealed temporal nuances in music consumption
- **Data Processing Techniques**
  - Leveraged Spark and Kafka for real-time data processing
  - Implemented windowing functions for time-based analysis
  - Integrated Azure Queues for granular user behavior analysis
- **Adapting to challenged**
  - Overcame integration complexities and performance bottlenecks
  - Explored the balance between fixed and sliding windows
  - Addressed limitations of synthetic data for meaningful insights



# REAL-WORLD APPLICATION

## Turning Insights into Actionable Strategies

### Personalized Content Strategy

- Tailoring content offerings based on user preferences
- Refining playlist curation for enhanced user engagement

### Targeted Marketing & Promotions

- Identifying regional trends for targeted advertising
- Promoting artists or playlists during peak listening hours

### Enhanced User Experience

- Designing shared listening experiences based on personality traits
- Improving recommendation algorithms for better user satisfaction

### Future Improvements

- Enhancing synthetic data generation for more realistic insights
- Implementing sliding windows for dynamic trend detection



# Thank you!

**Any questions?**

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