Analysis Report - KAG_conversion_data.csv

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File Information

Property	Value
Filename	KAG_conversion_data.csv
Total Rows	1143
Total Columns	11

Anomaly Detection Summary

Metric	Value
Total Anomalies	88
Percentage	7.70%

AI-Generated Business Analysis

Executive Summary: Analysis of KAG Conversion Data & Anomaly Detection

To: Executive Leadership
From: Senior Business Data Analyst
Date: October 26, 2023
Subject: Key Performance Insights and Anomaly Investigation in KAG Digital Campaign Data

1. Overview: What does this data tell us?

This report summarizes an analysis of 1,143 records from our KAG digital campaign conversion data. The dataset provides a granular view of our advertising efforts, encompassing campaign identifiers, demographic targeting (age, gender, interest), ad impressions, clicks, spend, and conversion metrics.

Overall, the data helps us understand the typical performance of our digital advertising initiatives. A significant finding is the presence of **88 anomalous records, representing 7.7% of our total campaign activities.** These anomalies exhibit vastly different performance

characteristics compared to the average campaign, suggesting either exceptional performance, critical issues, or data discrepancies that warrant immediate attention.

2. Anomalies: What unusual patterns exist? Why might they occur?

A small but significant portion of our campaigns (7.7%) are outliers, demonstrating performance metrics that are drastically higher than the norm. The key differences observed in anomalous records are striking:

- **Campaign Engagement & Spend: Impressions:** Anomalous campaigns average ~906k impressions, nearly **5 times higher** than the normal average of ~187k. **Clicks:** Anomalous campaigns average ~162 clicks, nearly **5 times higher** than the normal average of ~33 clicks. **Spent:** Anomalous campaigns average ~248 spent, nearly **5 times higher** than the normal average of ~51.

- **Conversion Effectiveness: Total Conversions:** Anomalous campaigns average ~13.4 conversions, nearly **5 times higher** than the normal average of ~2.9 conversions.

- **Targeting & Identification: Interest:** Anomalous campaigns target interests with a higher average value (~54) compared to normal (~33), indicating a potential correlation with specific, higher-performing interest categories. **Ad/Campaign IDs:** While less dramatic, `ad_id`, `xyz_campaign_id`, and `fb_campaign_id` averages are also higher in anomalous records, suggesting these outliers might belong to a newer or distinct set of campaigns.

Why these anomalies might occur:

- **Highly Successful Campaigns/A/B Test Winners:** These could represent exceptionally well-targeted ads, viral content, or successful A/B test variations that significantly outperformed others.

- **High-Impact Promotions/Events:** Campaigns running during peak seasons, major product launches, or special offers might naturally see disproportionately high engagement and conversions.

- **Fraudulent Activity:** Elevated impressions, clicks, and conversions without proportional spend increases (though spend is also high here) could sometimes indicate bot traffic, click farms, or other ad fraud.

- **Tracking or Budgeting Errors:** Technical glitches in ad platforms or internal tracking systems could lead to inflated numbers. Similarly, an ad group unintentionally assigned an excessively high budget could explain higher spend and impressions.

- **Specific, High-Budget Campaigns:** A few strategically important campaigns may intentionally receive significantly higher budgets to drive volume, explaining the higher spend and activity.

3. Impact: How do these findings affect business decisions?

Understanding and addressing these anomalies is critical for several business decisions:

• **Optimizing Campaign ROI:** If anomalies are due to successful strategies, replicating these successes can significantly boost our overall return on ad spend (ROAS). If they are due to inefficiencies or fraud, addressing them is crucial to prevent budget waste.

• **Strategic Budget Allocation:** Identifying which campaigns truly drive superior performance allows us to reallocate marketing budgets more effectively, prioritizing channels and ad creatives that deliver the best results.

• **Data Integrity & Trust:** Unexplained anomalies can erode trust in our performance metrics, making it difficult to make data-driven decisions. Resolving these ensures our reporting accurately reflects reality.

• **Risk Mitigation:** If any anomalies point to ad fraud or system errors, identifying and fixing these issues protects our budget and brand reputation.

• **Competitive Advantage:** Learning from exceptional campaign performance (e.g., specific interest targeting, creative elements) can give us a competitive edge.

4. Actions: What should the team do next?

To capitalize on the opportunities and mitigate the risks presented by these findings, I recommend the following actions:

• **Deep-Dive Investigation into Anomalous Records: Isolate and Review:** Extract the 88 anomalous records and conduct a granular review of each `ad_id` and associated `xyz_campaign_id` and `fb_campaign_id`. **Contextual Analysis:** Cross-reference these campaigns with marketing calendars, product launches, specific A/B test logs, and any known external events (e.g., holidays, competitor activities). **Segment by Interest:** Analyze the specific 'interest' categories associated with anomalous campaigns to identify high-performing segments.

• **Collaborate with Marketing & Ad Operations: Validate Performance:** Work with the marketing and ad ops teams to determine if these high-performing anomalies align with their expectations or if they indicate unexpected surges (positive or negative). **Identify Best Practices:** If confirmed as successful, document the specific creative, targeting (age, gender, interest), and budgeting strategies employed in these high-performing campaigns for replication.

• **Technical Data Audit: Tracking Verification:** Engage IT/Data Engineering to verify the accuracy of tracking pixels and conversion attribution models for the anomalous campaigns to rule out technical errors. **Fraud Detection Review:** Evaluate current ad fraud detection measures and consider enhancing them if any indications of fraudulent activity are found.

• **Establish Proactive Anomaly Monitoring: Automated Alerts:** Implement automated anomaly detection and alerting systems for key KPIs (Impressions, Clicks, Spent, Total_Conversion) to flag similar patterns in real-time going forward. **Define Thresholds:** Work with stakeholders to define acceptable thresholds for campaign performance to distinguish between "exceptional" and "problematic" outliers.

By taking these steps, we can transform these intriguing anomalies into actionable insights, driving more effective marketing strategies and ensuring the integrity of our performance data.