**A/B Test Analysis Report:**

**New Ad Campaign Performance**

**Executive Summary**

An A/B test was conducted to evaluate the effectiveness of a new ad campaign against a control PSA (Public Service Announcement). The results show that the new ad campaign **increased the conversion rate by 42.5%**, a statistically significant improvement. Based on these findings, we recommend permanently implementing the new ad campaign.

**1. Introduction & Methodology**

* **Objective:** To determine if the new ad campaign leads to a higher conversion rate compared to the existing PSA.
* **Groups:**
  + **Control Group (PSA):** Shown a public service announcement.
  + **Treatment Group (Ad):** Shown the new marketing ad.
* **Sample Size:** 588,101 users
* **Key Metric:** Conversion Rate (Percentage of users who converted)

**2. Results & Key Findings**

**a) Conversion Rate by Group:**

| Group | Total Users | Conversions | Conversion Rate |
| --- | --- | --- | --- |
| Control (PSA) | 23,524 | 420 | 1.79% |
| Treatment (Ad) | 564,577 | 14,423 | 2.55% |

**b) Statistical Analysis:**

* A Chi-Squared Test was performed to validate the results.
* **P-value:** < 0.00001 (Extremely statistically significant)
* **Conclusion:** There is less than a 0.001% chance that the observed difference is due to random chance. The improvement is **real and significant**.

**c) Performance Lift:**

* The new ad campaign drove a **+0.76 percentage point** increase in absolute conversion rate.
* This represents a **42.5% relative increase** in conversions.

**3. Conclusion & Recommendation**

**Conclusion:**  
The new ad campaign is a clear winner. It significantly outperforms the PSA control group, demonstrating its effectiveness in driving user conversions.

**Recommendations:**

1. **Immediate Action:** Permanently implement the new ad campaign for all users.
2. **Monitor Impact:** Track the conversion rate for the next quarter to ensure the lift holds at scale.
3. **Investigate Further:** Analyze why the ad was successful (e.g., messaging, creative, audience targeting) to replicate this success in future marketing initiatives.

**4. Appendix: Technical Details**

* **Tools Used:** Python (Pandas, SciPy, Seaborn), Jupyter Notebook
* **Statistical Test:** Chi-Squared Test for Independence (α = 0.05)
* **Dataset:** Marketing A/B Test dataset from Kaggle (588k records)

A graph of conversion rate by test group

AI-generated content may be incorrect.