

Meta Ads A/B Testing

Data Analyst Portfolio
By: Alfina Nurmayati



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Alfina Nurmayati

Self-Overview

Antrhropology Graduates with experience in data analysis, qualitative research, and administrative tasks. Passionate about leveraging data to solve complex challenges.

Education Background

University of Indonesia (2018–2022)

Bachelor's in Anthropology (GPA: 3.67/4.00)

Conducted qualitative research on Vtuber communities.

Dibimbing.ID Data Science Bootcamp (2024–Present)

Learned data science methodologies, Python, and data visualization.

Work Experience

UENA – Data Operations Analyst (December 2024 – Present)

Documenting the end-to-end process of operational expenses analysis.

Bank Central Asia – Teller (Mei 2023 – September 2024)

Processed transactions with 99% accuracy and improved archive management efficiency by 30%. Also boosted customer satisfaction by 20% and contributed to branch sales growth.

Research Assistant (2022 – 2023)

Conducted qualitative research and increased webinar engagement by 20%.



Overview Project

Bootcamp Projects

[Link](#)

Supermarket Sales Data Manipulation

Performed data manipulation on a Supermarket Sales dataset to clean, preprocess, and analyze transactional data. Applied Python libraries to extract insights and ensure data consistency.

E-Commerce Dataset Exploratory Data Analysis (EDA)

Conducted exploratory data analysis (EDA) on an e-commerce dataset to uncover patterns and trends, focusing on customer behavior, sales performance, and product categories.

College Thesis

[Link](#)

Vtuber Communities: A Qualitative Study on Sense of Community and Commodification

Relevance: Demonstrated proficiency in analyzing large volumes of qualitative data to extract meaningful patterns, a skill essential for understanding unstructured data in analytics.

Key Takeaway: Showcases ability to interpret social and cultural trends, aligning with exploratory data analysis (EDA) techniques used in understanding customer behavior.



Main Project

Project Background

Objective

Conduct A/B testing to evaluate the **effectiveness of different ad sets in driving traffic**, measured by **landing page views**

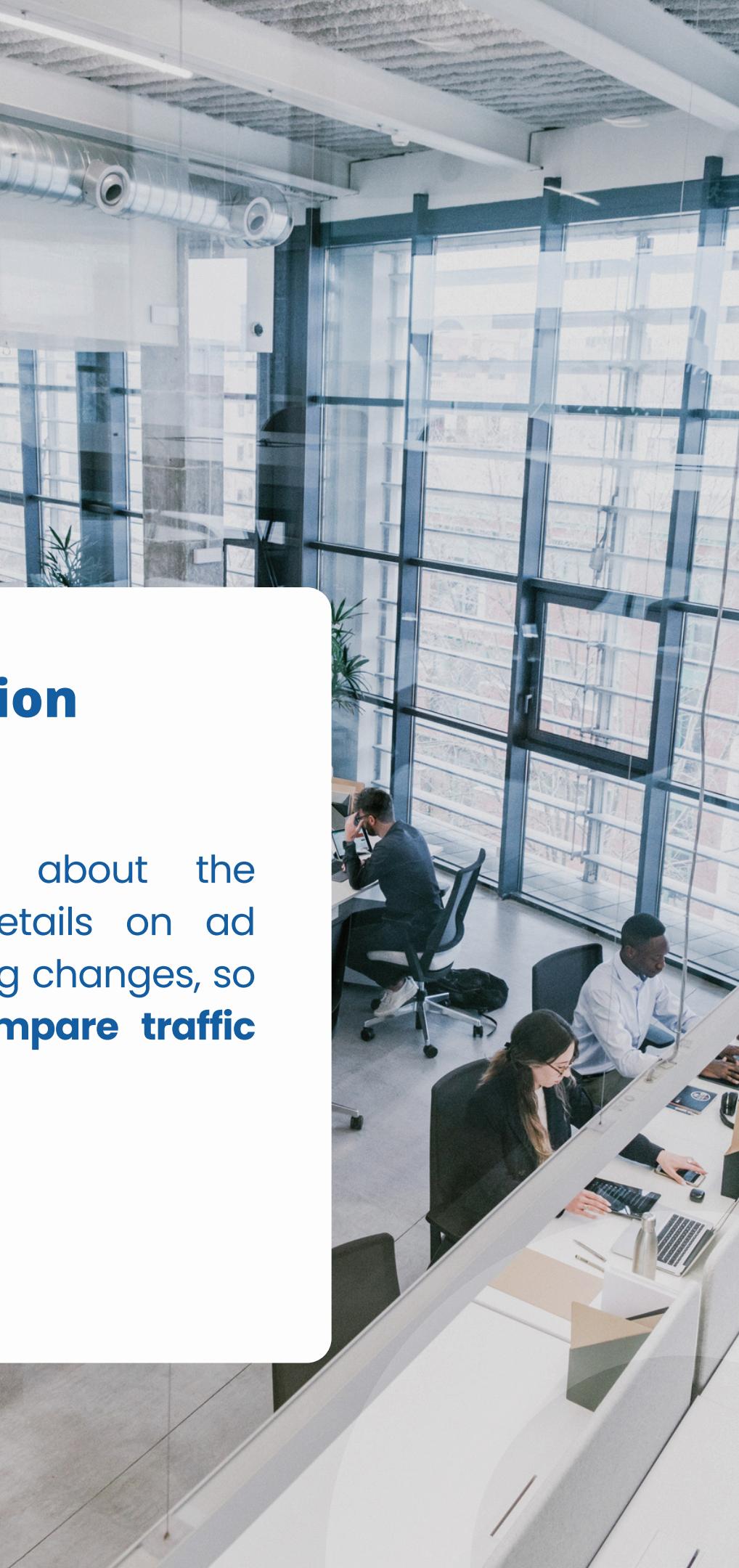
Context

The dataset contains ad performance metrics from Meta Ads, focusing on two experiments:

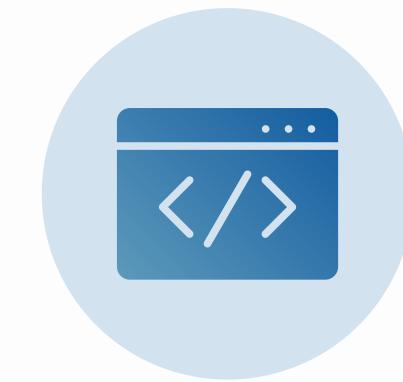
- **HumanCustomer Group A vs. HumanCustomer Group B** (targeting human-centric audiences).
- **Brand + Product Group A vs. Brand + Product Group B** (focusing on brand/product messaging).

Limitation

Limited metadata about the experiments. No details on ad creatives or targeting changes, so the focus is to **compare traffic outcomes**.



Business Problem



Key Question

Do variations in ad sets (A vs. B) lead to statistically significant differences in landing page views?



Hypotheses

H₀: No significant difference in landing page views between Group A and Group B in both experiments.

H₁: Significant difference exists, indicating one group outperforms the other.



Stakeholder Needs

Optimize ad spend by identifying high-performing ad sets to scale traffic efficiently.

Data Understanding

Dataset Overview:

637 rows, 39 columns (reduced to 27 after cleaning).

Key columns: Ad Set Name, Landing page views, Link clicks, Impressions, CPC, CTR.

Data Cleaning Steps:

- Dropped columns with 100% missing values (e.g., Purchases, Checkouts Initiated).
- Impute the missing values with 0
- Keep the outliers as it is.
- Filtered the data for hypothesis testing based on non-Null Values of Landing page views

Data Analysis and Insights

01

02

03

Statistical Tests:

Normality Check: Shapiro-Wilk tests confirmed non-normal distributions for all groups ($p < 0.05$).

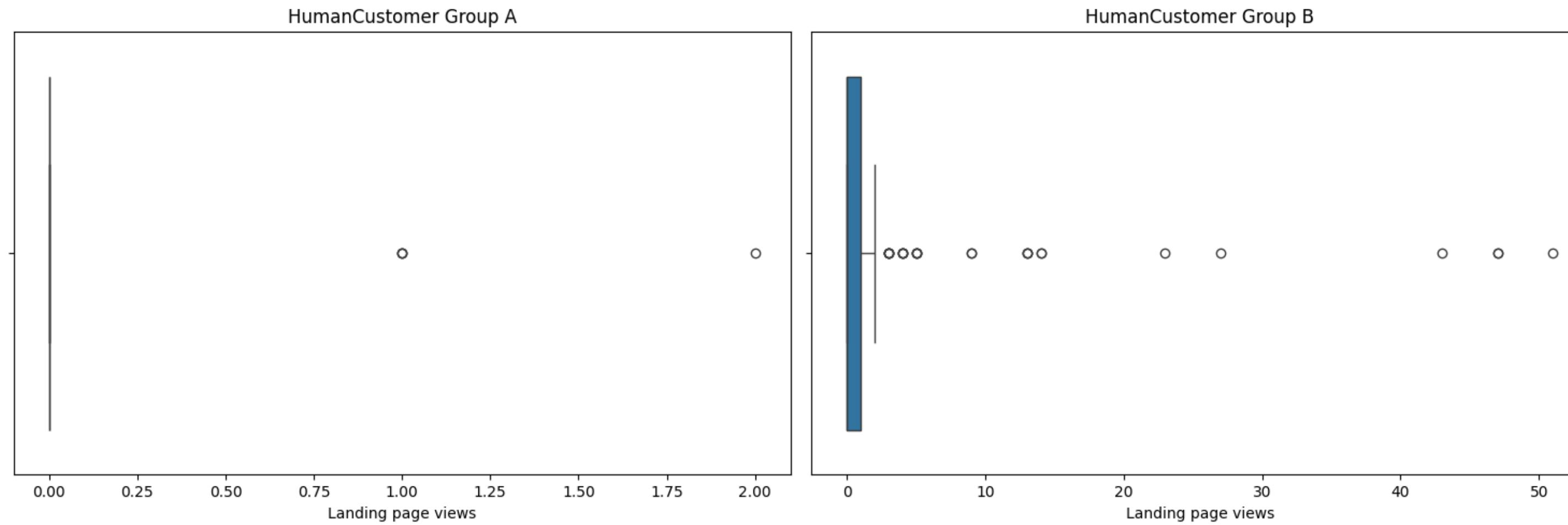
Hypothesis Testing: Non-parametric Mann-Whitney U Test used due to non-normality.

Results:

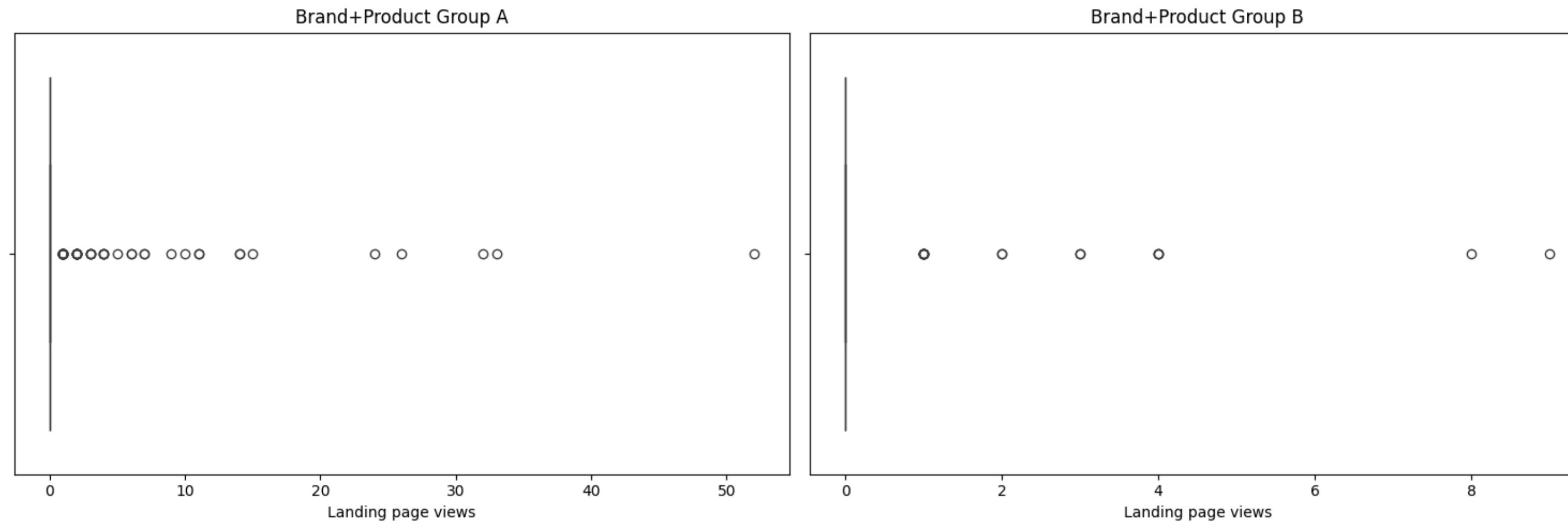
- HumanCustomer Groups:
 - $p = 0.00378 \rightarrow$ **There is Significant difference** between A and B.
- Brand + Product Groups:
 - $p = 0.04704 \rightarrow$ **There is significant difference** between A and B.

Key Insight: Both experiment showed statistically significant differences in landing page views.

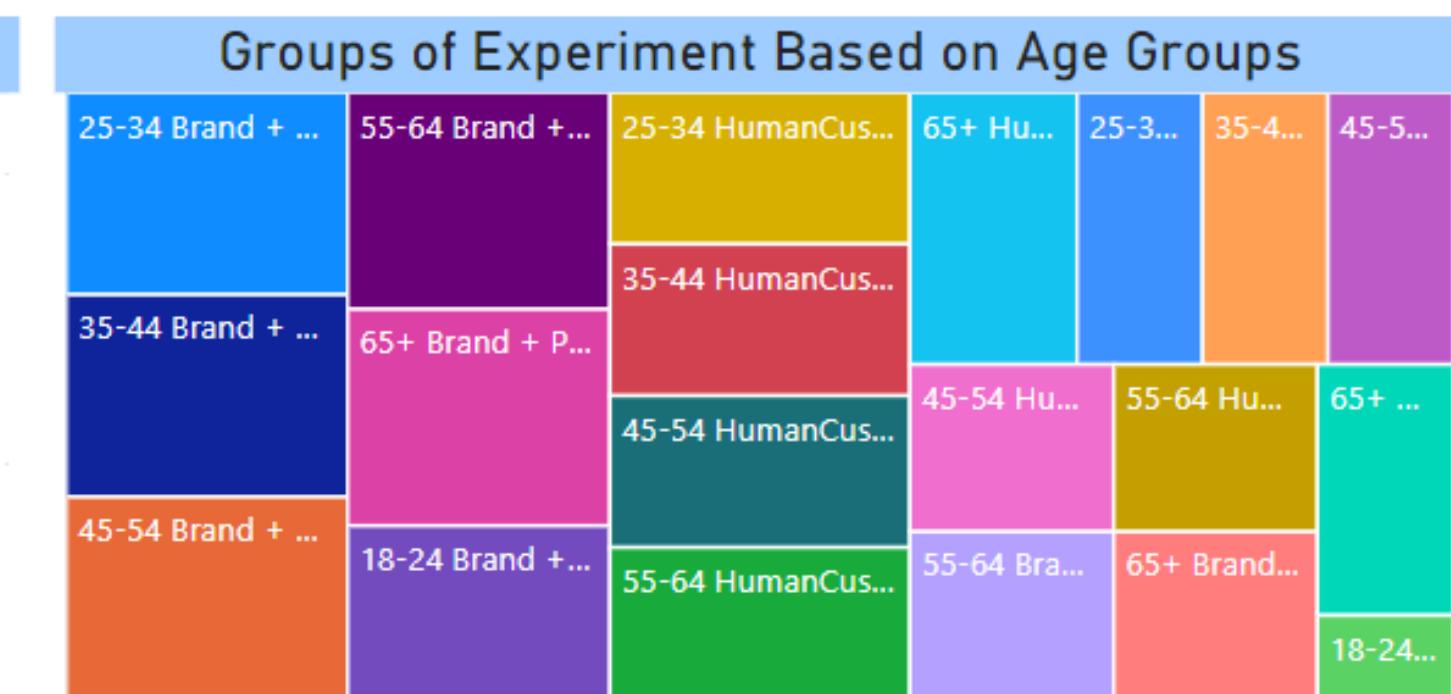
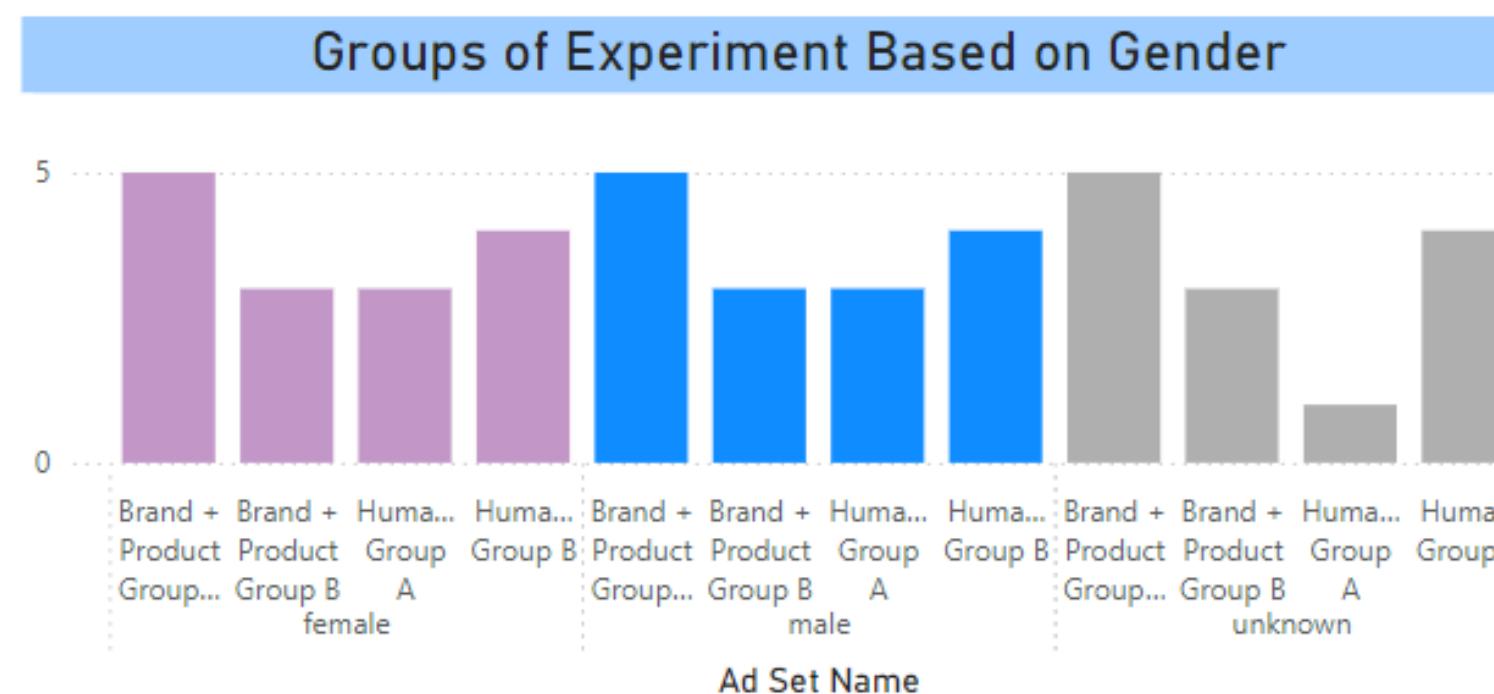
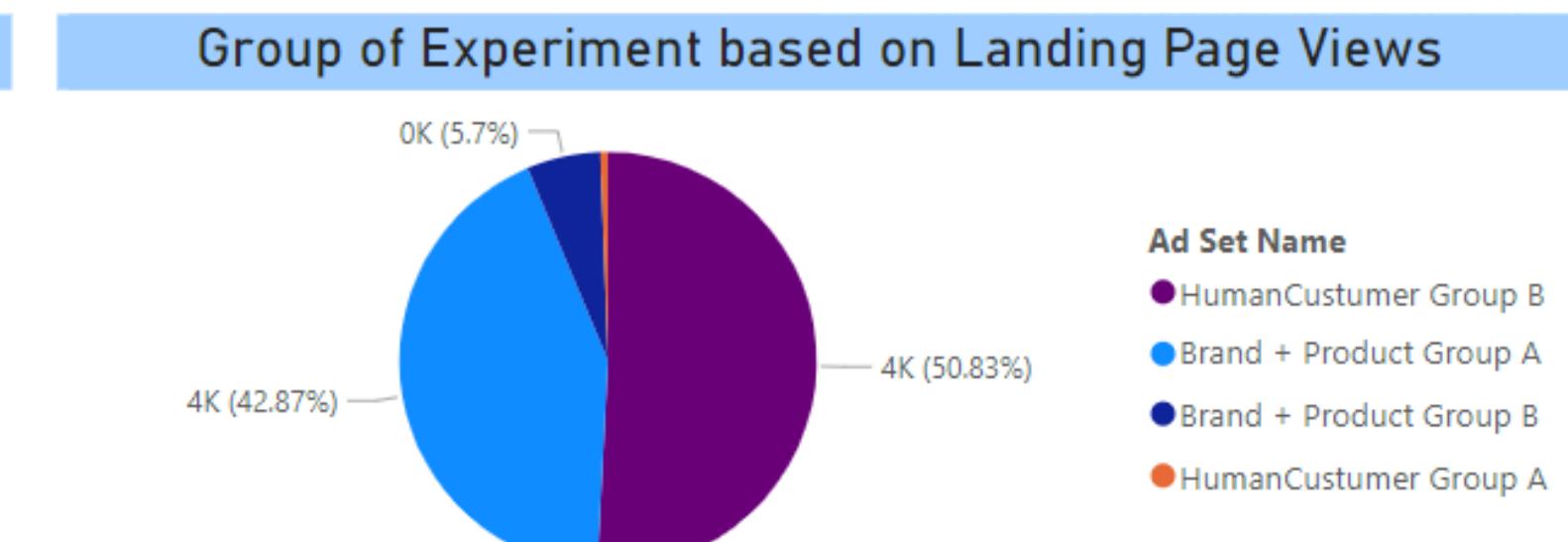
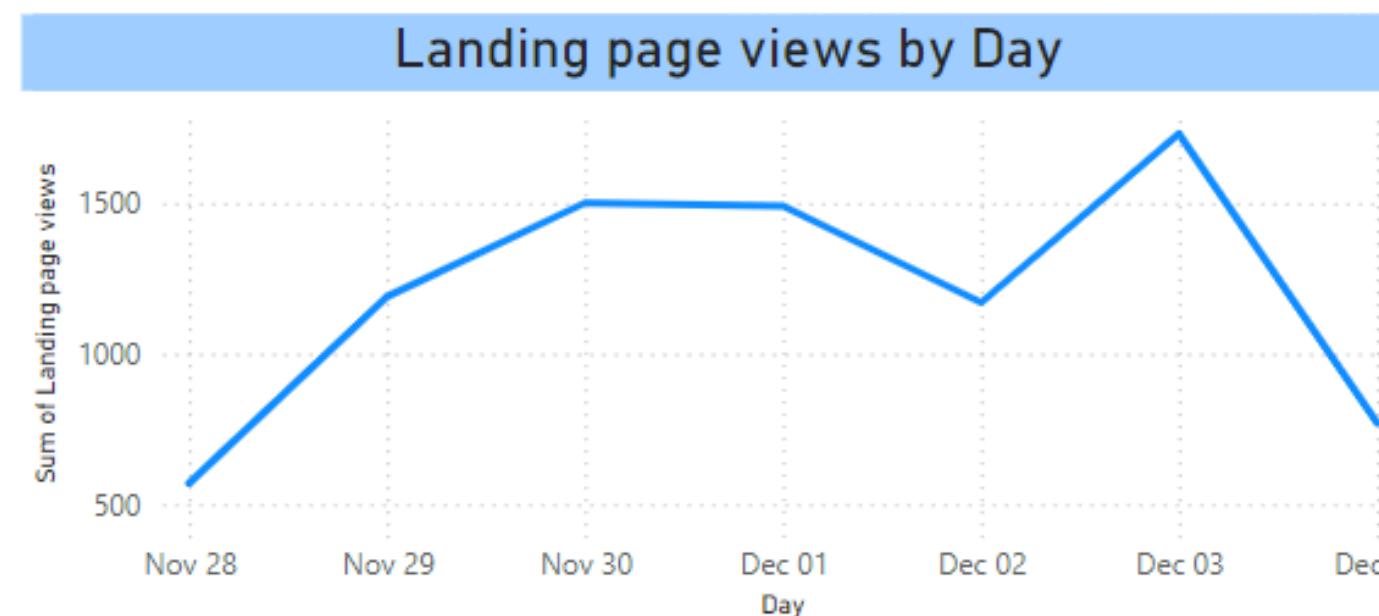
Boxplots Visualization



Boxplots Visualization



Meta Ads Landing Page Views Dashboards



Actionable Insights

1. Human Customer Campaigns:

- **Group B outperforms Group A** in landing page views (higher mean).
- Suggests audience resonance with Group B's creatives or targeting.

2. Brand+Product Campaigns:

- **Group B underperforms Group A** (lower mean).
- Indicates potential creative fatigue or misaligned messaging in Group B.

Recommendations Insights

1. HumanCustomer Campaigns:

- Scale Group B immediately; analyze its creatives/audience targeting for replication.

2. Brand+Product Campaigns:

- Pause Group B; refine creatives or test new audiences before re-launching.

3. Root-Cause Analysis:

- Compare top-performing creatives (HumanCustomer B vs. Brand+Product A) to identify winning elements.

4. Audience Overlap Check:

- Ensure Brand+Product Group B isn't cannibalizing traffic from HumanCustomer campaigns.

Link of Reference and Processing Data:

- [Facebook Ads Manager](#)
- [Hypothesis Testing Methods](#)
- [Dataset](#)
- [EDA](#)
- [Slideshow](#)