House Stark

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Introduction

Vanguard Digital Interface Experiment: User Completion and Engagement Analysis

New Website Feature Launch

- **A/B Test Period**: March 15, 2017 – June 20, 2017.
- **Client Groups**:
  - **Control Group**: Used the existing feature.
  - **Test Group**: Used the new feature.

→ Session = visit_id

Data Overview

01 | 02 | 03 | 04

Merging data sets

Merging digital footprints into one dataset.

Formatting

Formatted and standardized the data.

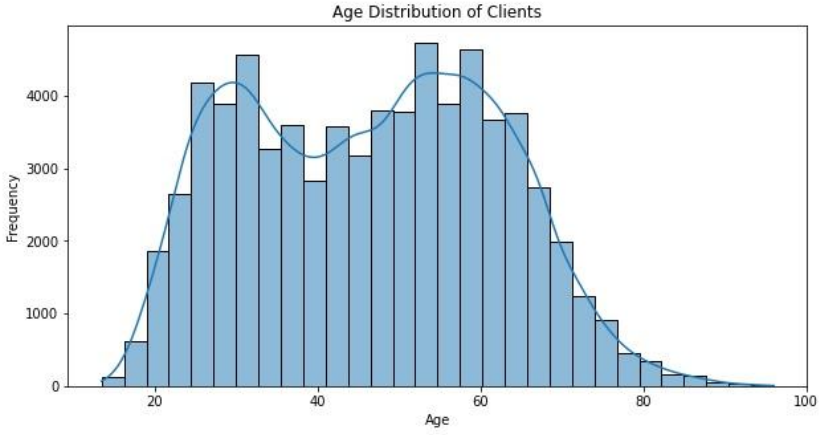
Null values & incorrect values

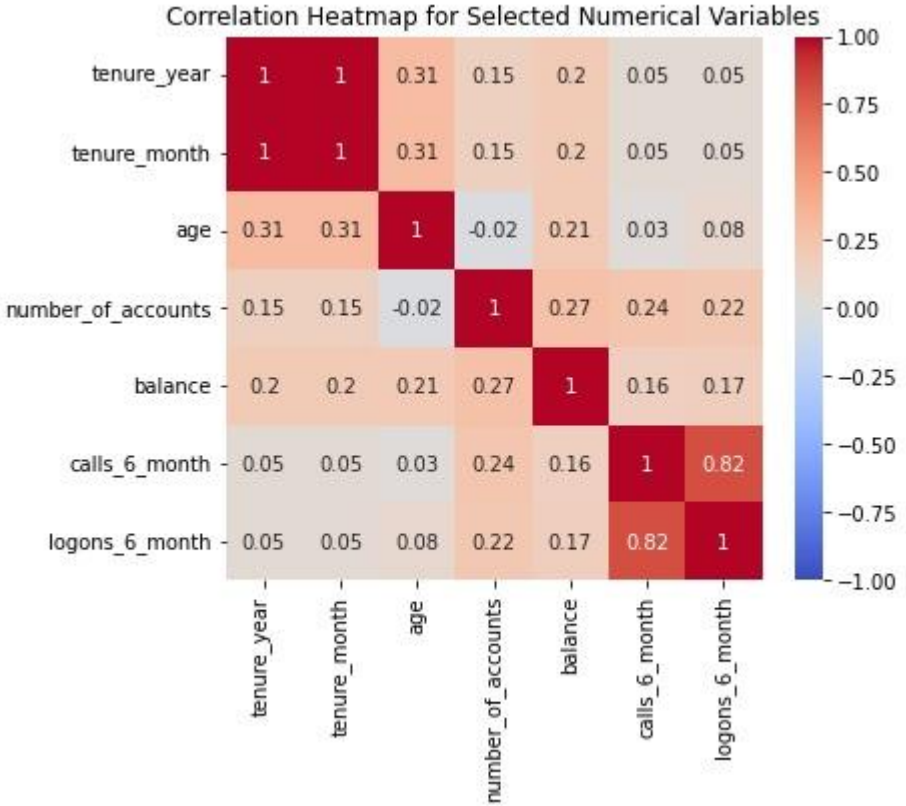
Removed null entries and corrected inaccuracies.

Final sample

Total: **50,488** clients
Divided into two groups: **Test** and **Control.**

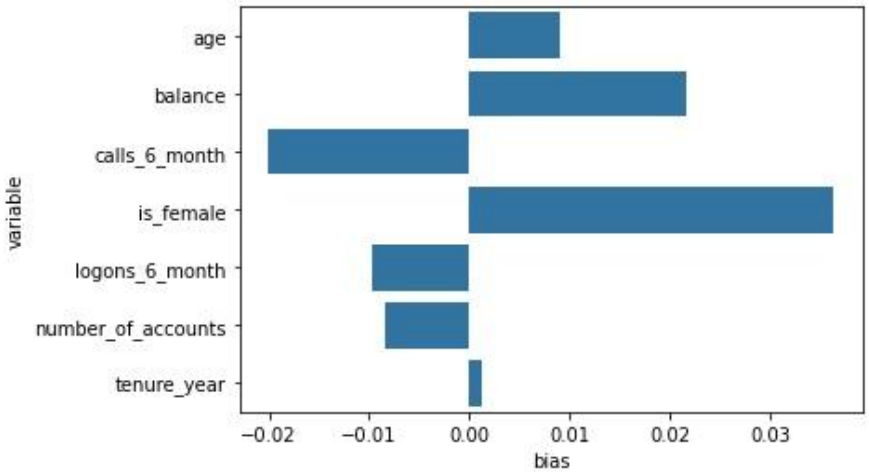
Exploratory data analysis





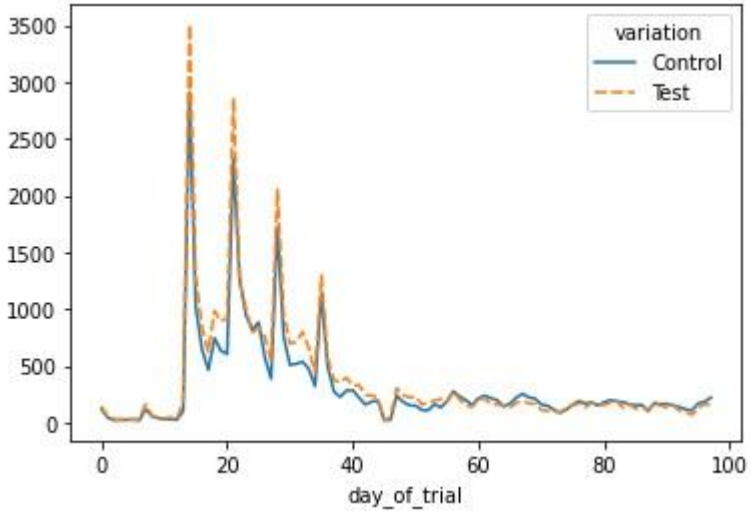
Evaluation of the experiment

Biases



- Overall, the bias is within acceptable limits for the experiment.
- No Sample Selection Bias.

Duration



- Significant rise in user access after the first two weeks.
- Noticeable spikes in April, likely due to the U.S. federal income tax filing deadline.

Key performance indicators (KPIs) & Metrics

Completion rate:

The percentage of users who successfully reach the final “confirm” step.

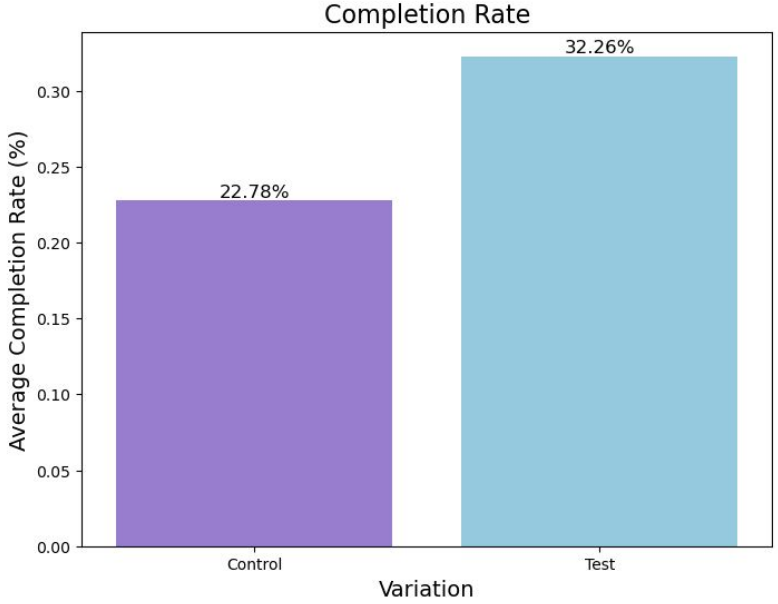
Average time:

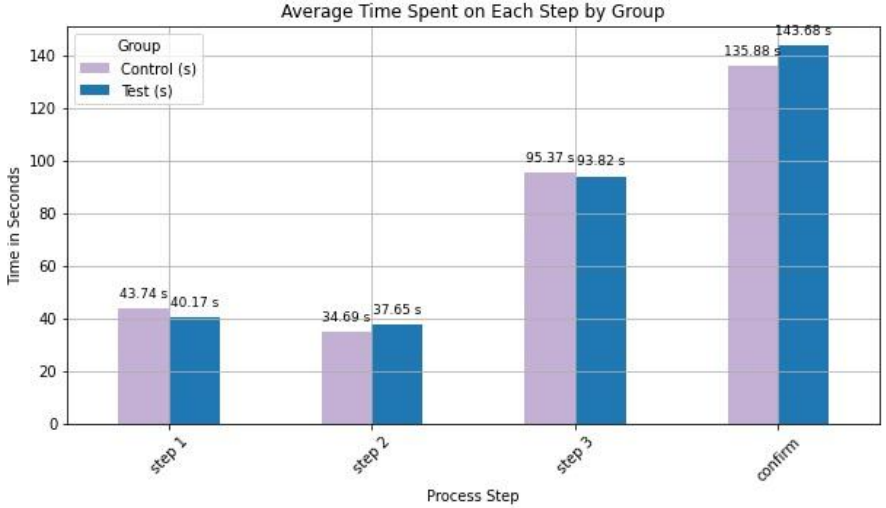
Measures the average time users take to move from one step to the next.

Calls vs logins rate:

Measures the average of calls by client for each login.

Key Performance Indicators (KPIs) & Metrics



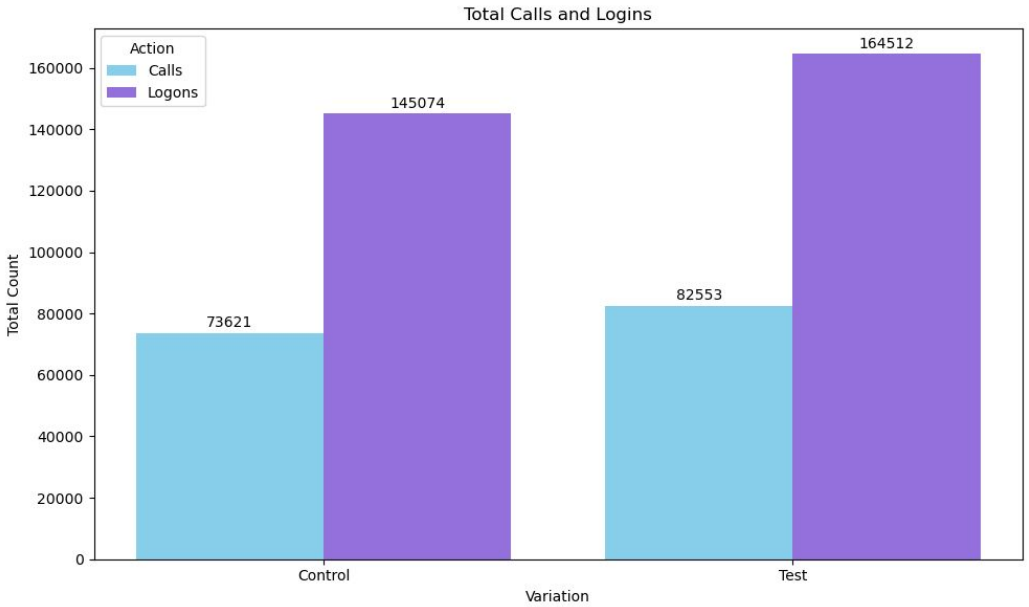


Average time

Test	Control
315 s	309 s

Key Performance Indicators (KPIs) & Metrics

Calls vs logins rate



Test

51% calls

Control

50% calls

Hypothesis Testing

The new feature is expected to motivate more clients to complete the process?

KPI: Completion rate.

Chi-Squared Statistic: 853.289.

P-value: 1 .4010802466791885e-187.

H0 : No significant difference in completion rates between the Control and Test groups.

H1 : There is a significant increase in completion rates for the Test group.

- There is a statistically significant improvement in completion rates for the Test group compared to the Control group.

Does the new feature reduce time spent on each step?

KPI: Time spent on each step

Average Time per Step:

Control: 77.42 sec Test: 78.33 sec.

Total Time Spent:

Control: 309.68 sec Test: 315.32 sec.

H0: There is no significant difference in the time spent in each step of the process between the control group and the test group .

H1: The new design significantly reduces the time spent in each step of the process compared to the old design.

- The average time spent on the new design is significantly different from the old design.

Test group clients will have more interactions (logins and calls), indicating greater engagement and independence?

KPI: Calls vs logins rate.

T-statistic for Calls : 3.4466

P-value: 0.0006

H0: No significant difference in logon-to-call ratio between Control and Test groups.

H1: The Test group shows a higher logon-to-call ratio, indicating greater user independence.

- There is a significant difference in the logons to calls ratio between the Test and Control groups.

Challenges & Learnings

- Handling multiple sessions per user and ensuring that the completion rate is calculated per session, not just per user.
- Selecting the right hypothesis test for comparing completion rates and interaction ratios.
- Gaining proficiency with Tableau for data visualization took some time, especially in designing interactive dashboards.

Conclusion

- Users may need time to adapt to the new layout, which is expected to **reduce the time spent on each step** over time.
- The new feature increased the completion rate by **10%**, surpassing the **5% threshold** .
- The ratio of logons to calls in the Test group suggests that clients in this group were more independent, relying less on customer support.

Tableau Visualizations

Please click on the link below

https://public.tableau.com/app/profile/xinly.roy/viz/Vanguard_DB/Dash-Demog?publish=yes

THANKS!

Amir
Xinly

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