

# AB Test **Vanguard :**

**Investing or not..  
in the new features**

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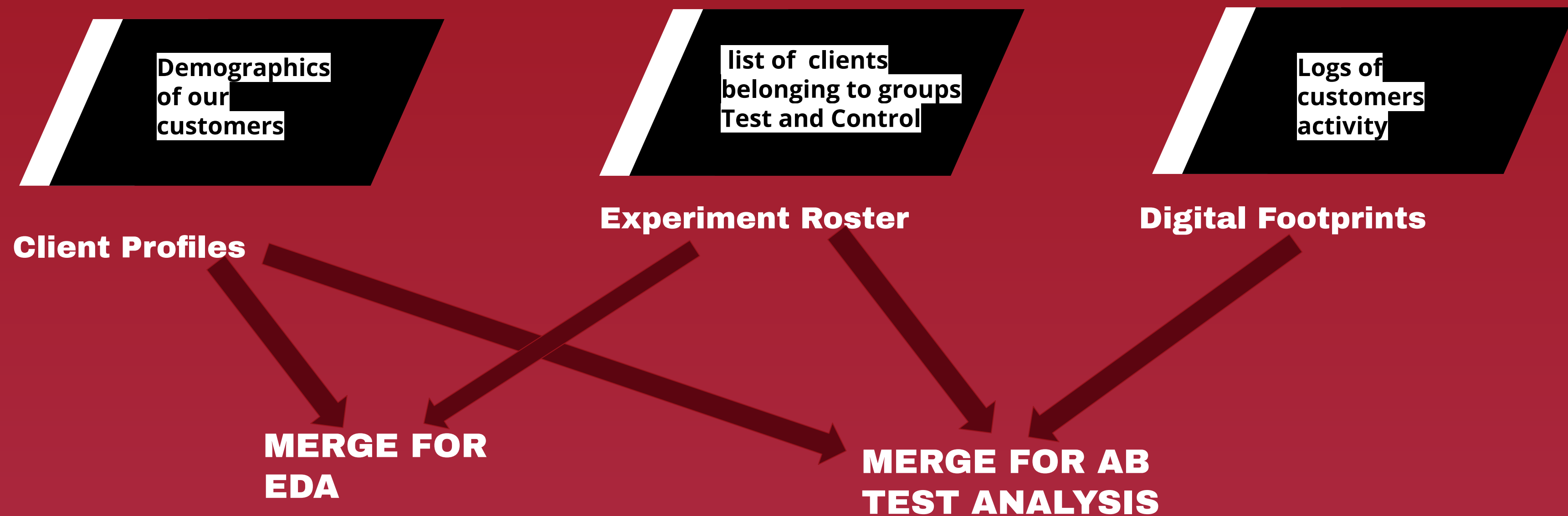


# Introduction

- Vanguard's main goal is to **ensure investors understand their savings objectives.**
- Website access provides crucial information for this.
- The new design continuously helps investors manage portfolios and achieve financial security.
- Today, we focus on a POC, allowing customers to process operations.
- Efficiency is assessed through an AB test, comparing it with the current version.



# Data Overview



# Cleaning and Merging

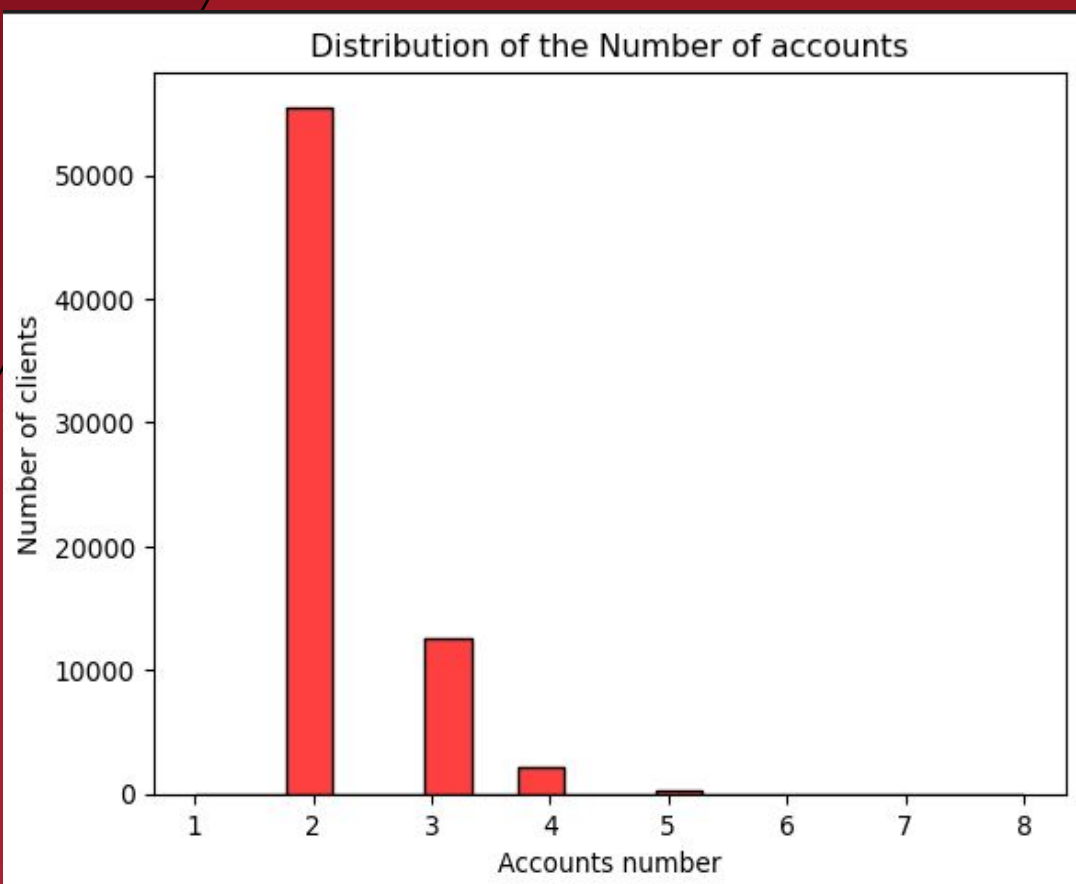
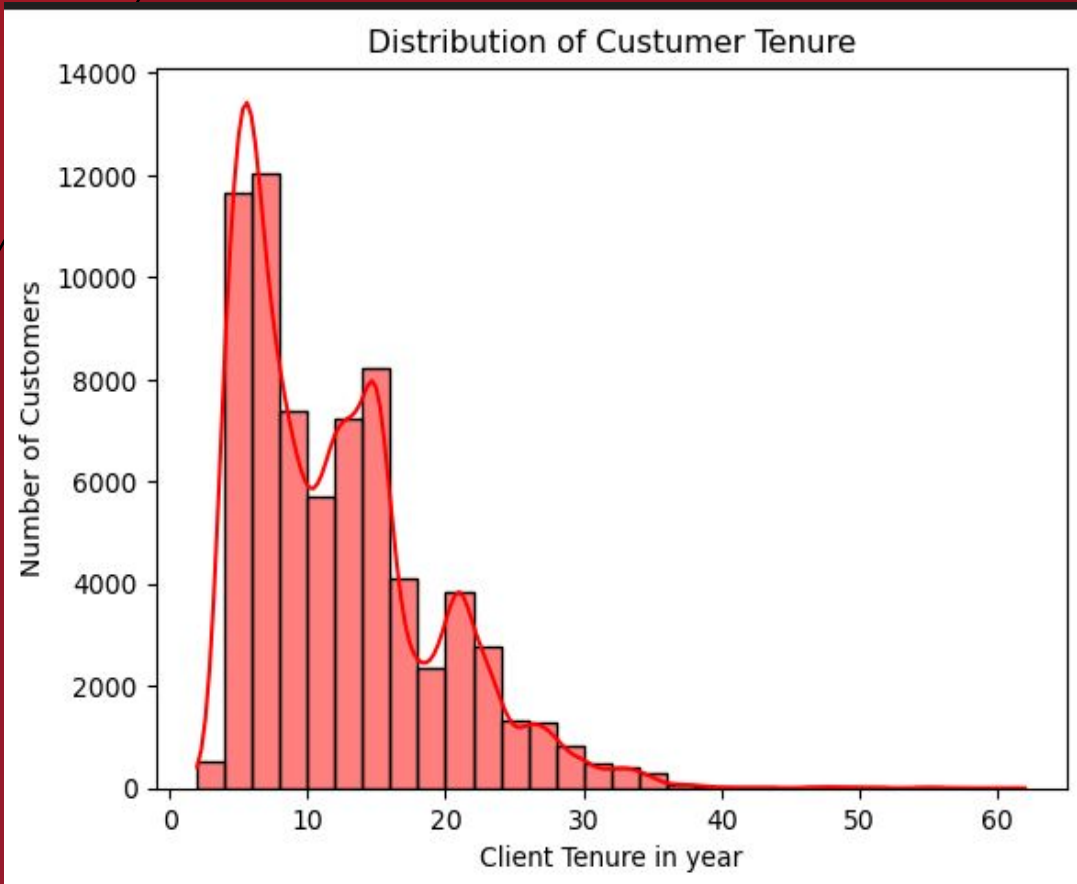
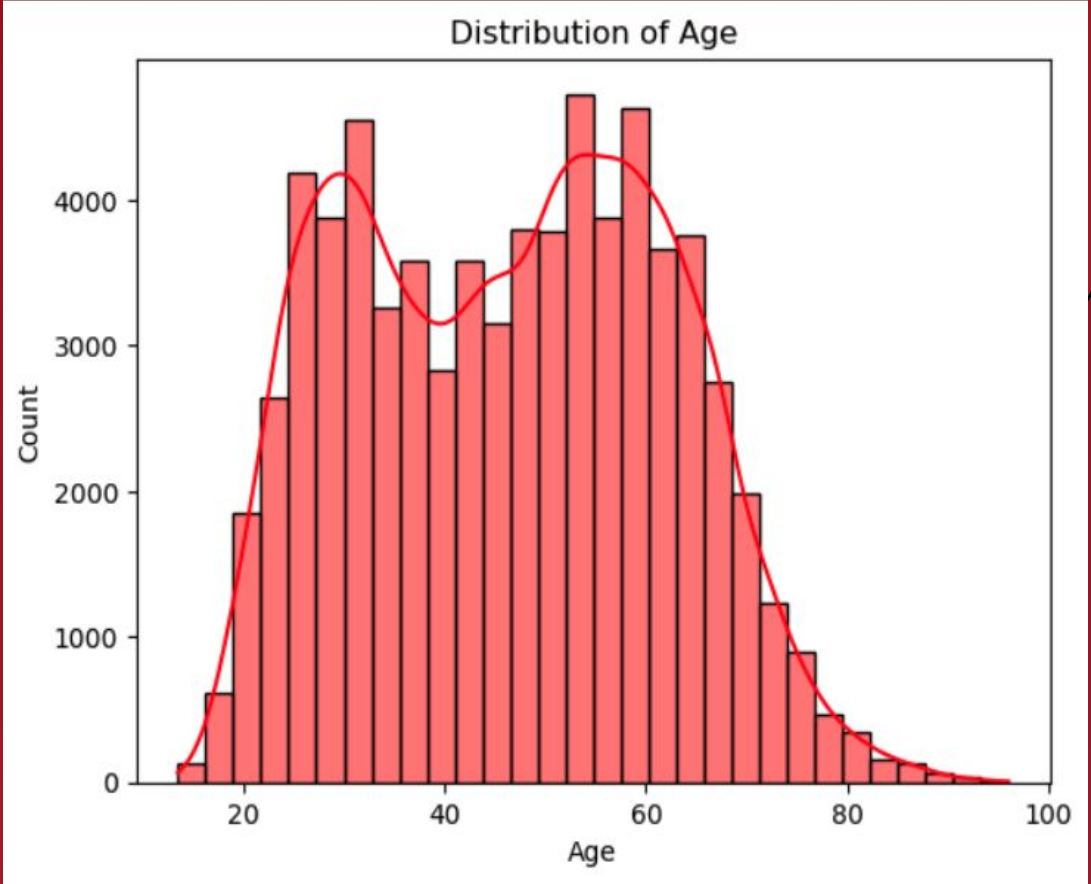


## EDA

- **Transformation of numerical demographic variables for datatypes**
- **Creation of new columns as categories ( customer's age, tenure and balance)**

## AB - Test analysis

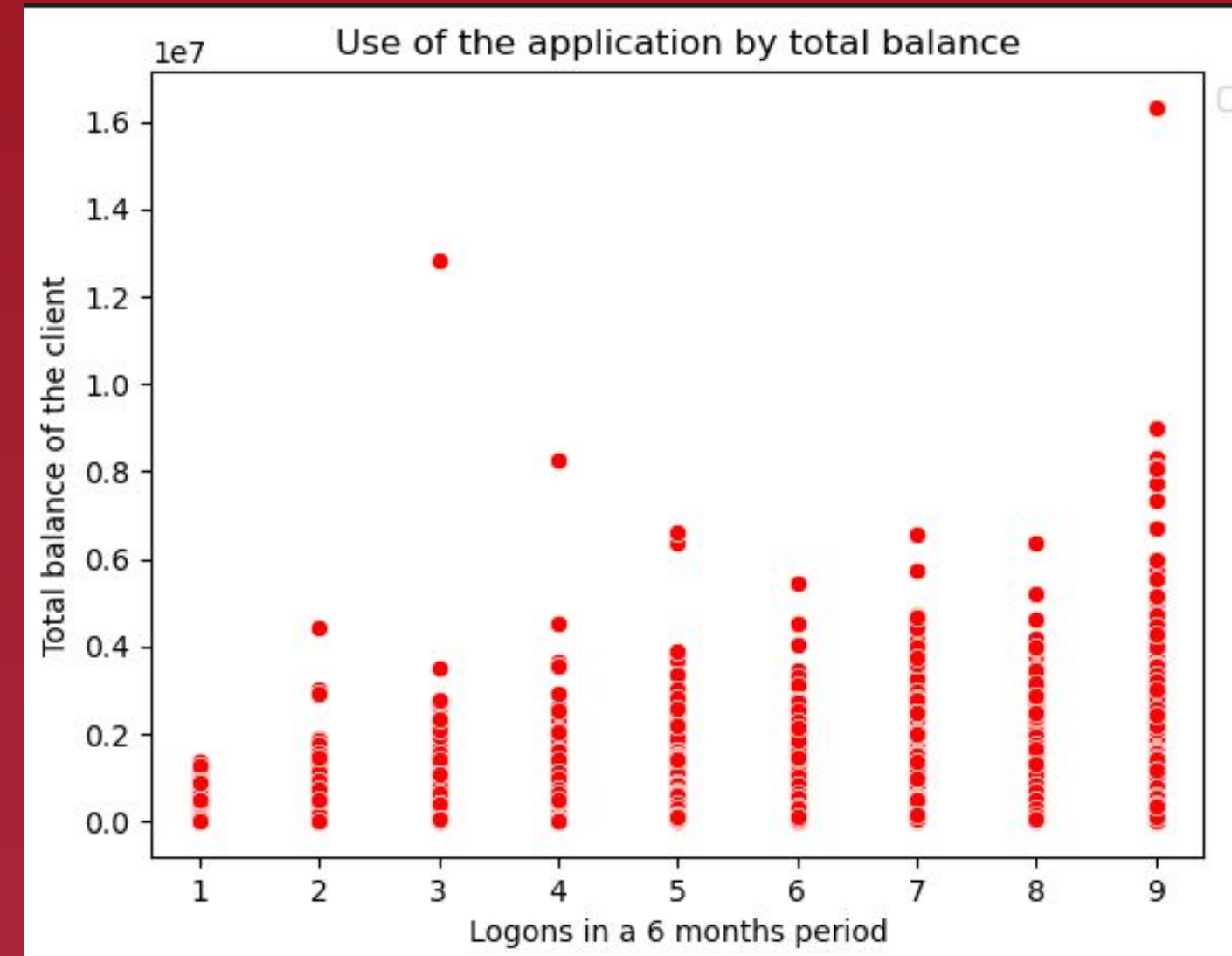
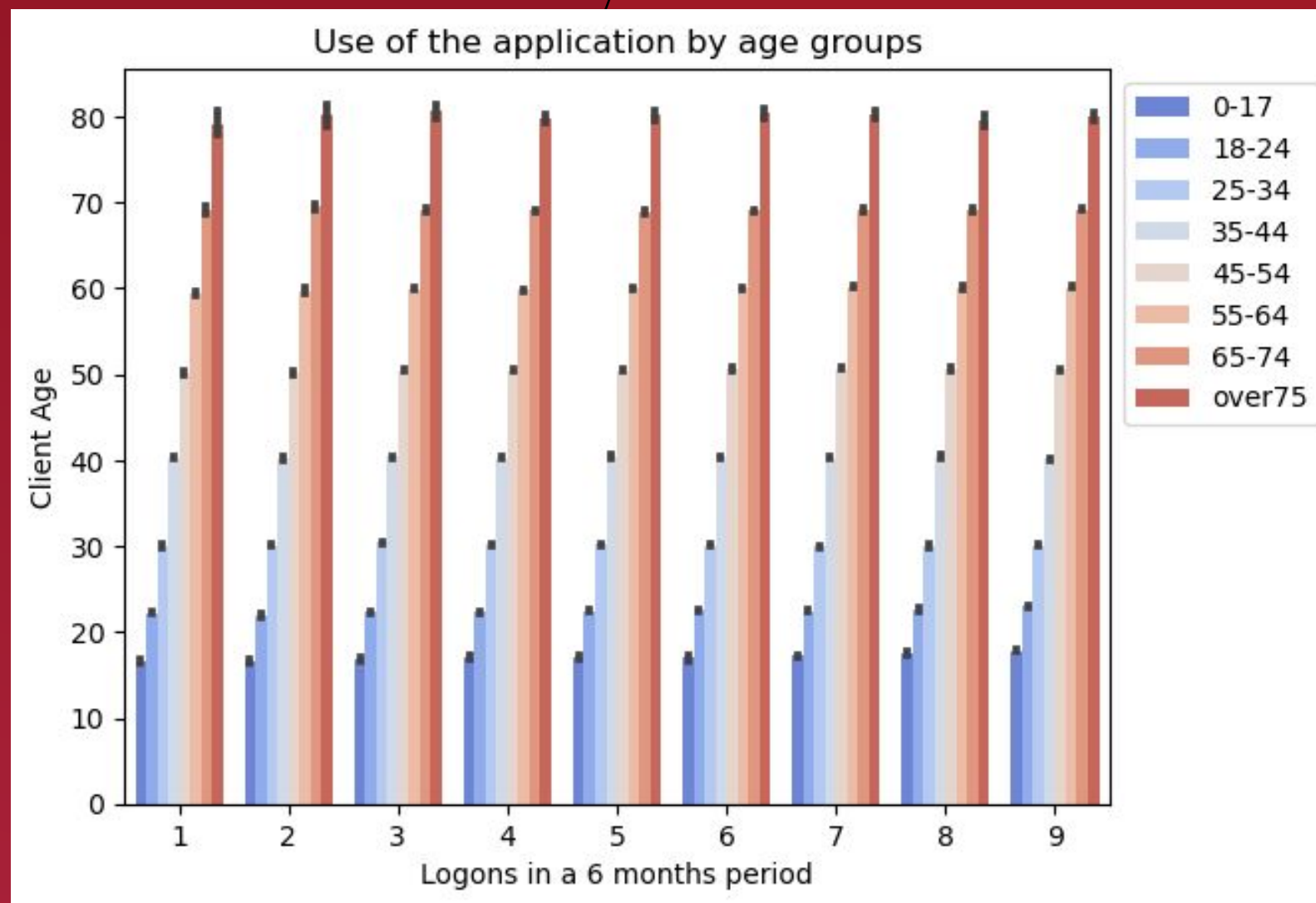
- **Records occurring after the user reaches the 'confirm' step were discarded**
- **Reorganization into two datasets: Completers (Conversions) and Abandonments (Non-conversions)**



Variable	Mean	Median	Mode	Range
Tenure in years	12.053007	11.00	6.00	60.00
Age	46.442240	47.00	58.50	82.50
Number of accounts	2.255532	2.00	2.00	7.00
Total Balance	147446.73	63334.59	31188.62	16306250.73



# Behaviour of the customers



Variable	Mean	Median	Mode	Range
Calls within 6 months	3.382469	3.00	6.00	7.00
Logons within 6 months	5.566720	5.00	9.00	8.00



# Performance Metrics

## Completion Rate / Abandonment Rate

A/B Test Funnel Comparison with Drop-off Percentages



# Hypothesis Testing

## Completion Rate

- **H0:** The completion rate in the control group is at least 5 % lower than the completion rate in the test group.

$$H0 : p2 - p1 \geq 0,05$$

- **H1:** The completion rate is significantly higher for the Test Group compared to the Control Group.

$$H1 : p2 - p1 < 0,05$$

p-value	(one-tailed): 0.0
t-statistic	20.2192
Critical value	0.05

**Reject the null hypothesis:**  
**The completion rate in the Test group is significantly higher from the Control group.**

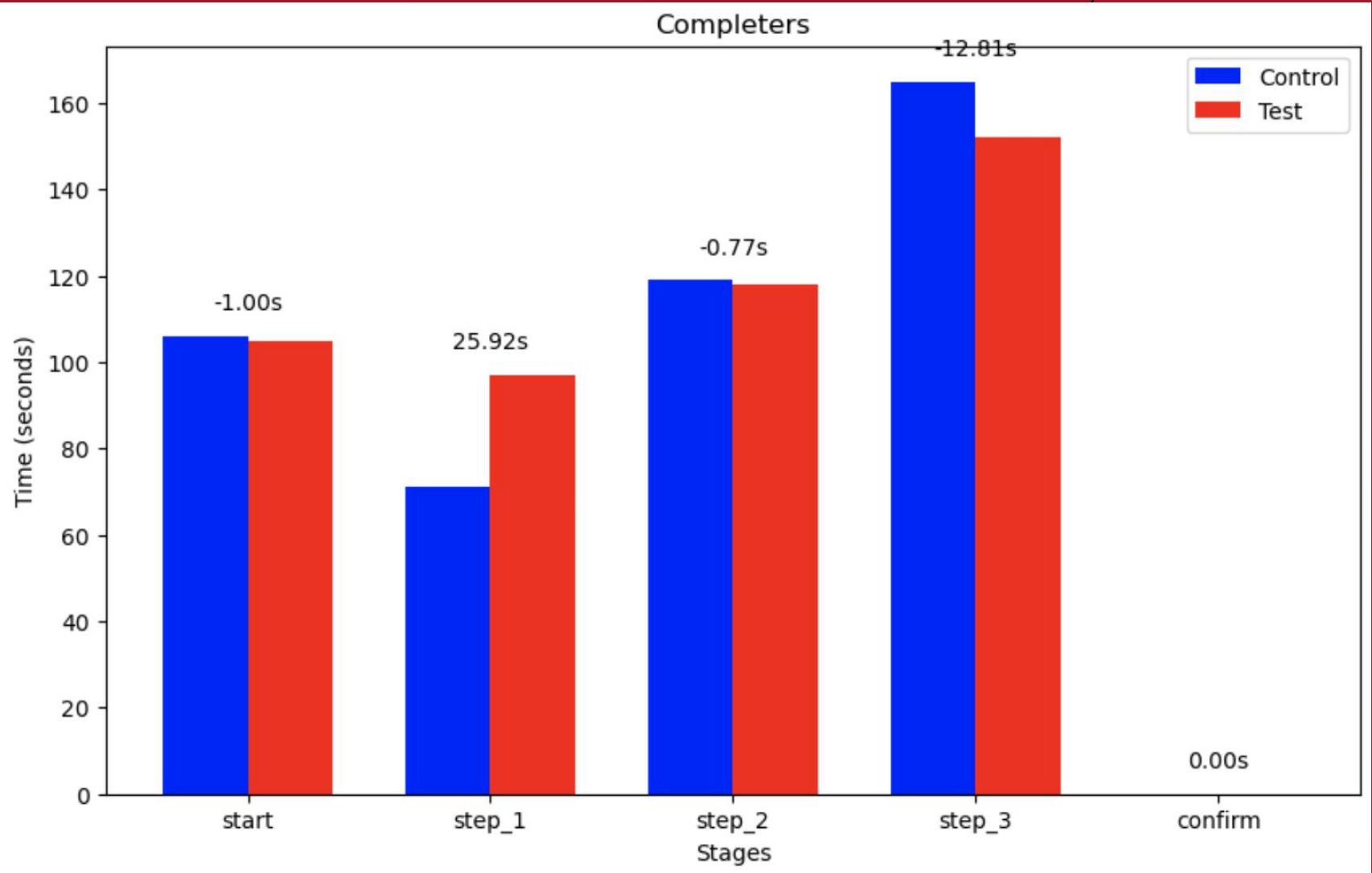




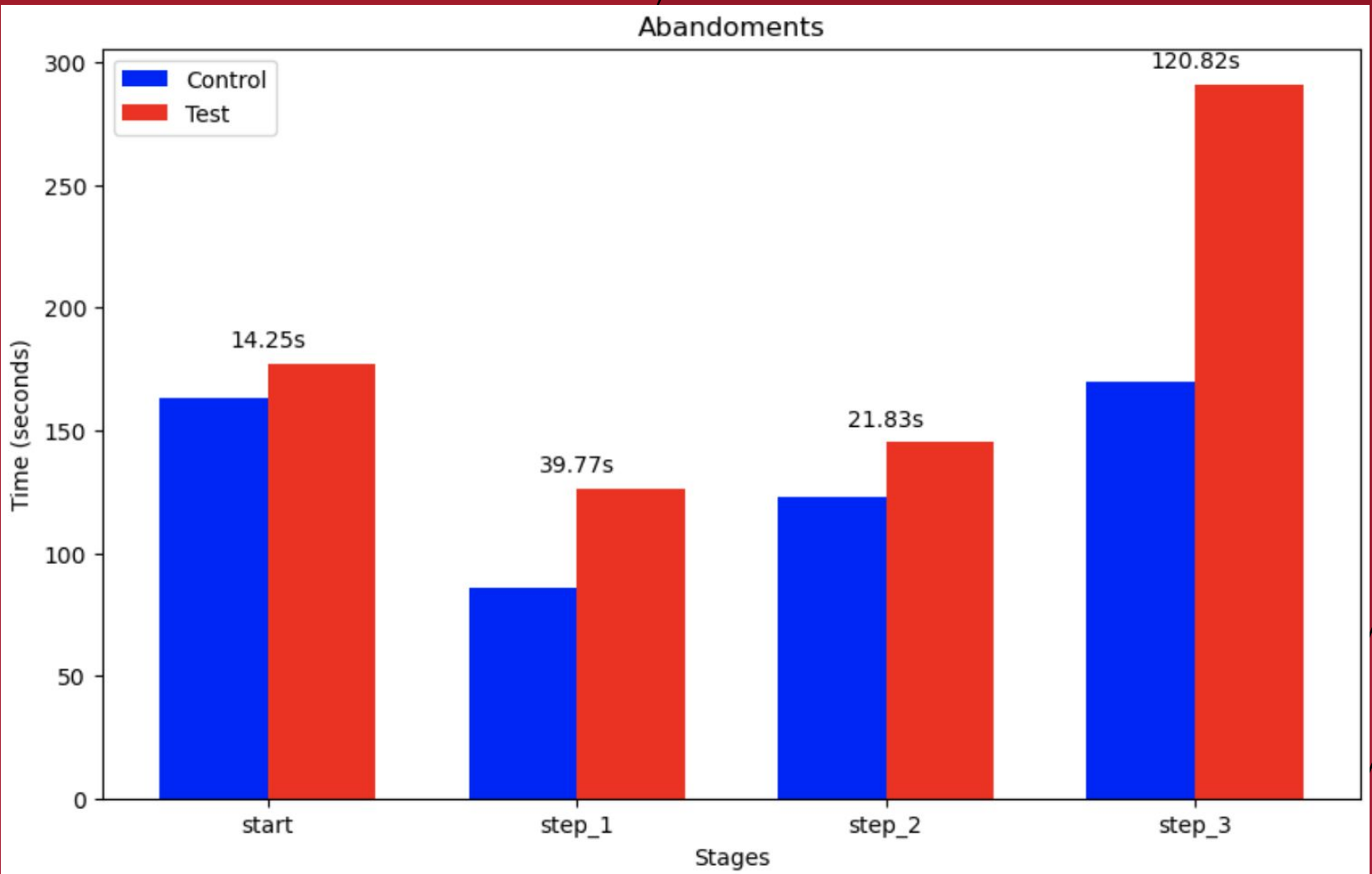
# Performance Metrics

## Time Spent on Each Step

Completers (Conversions)



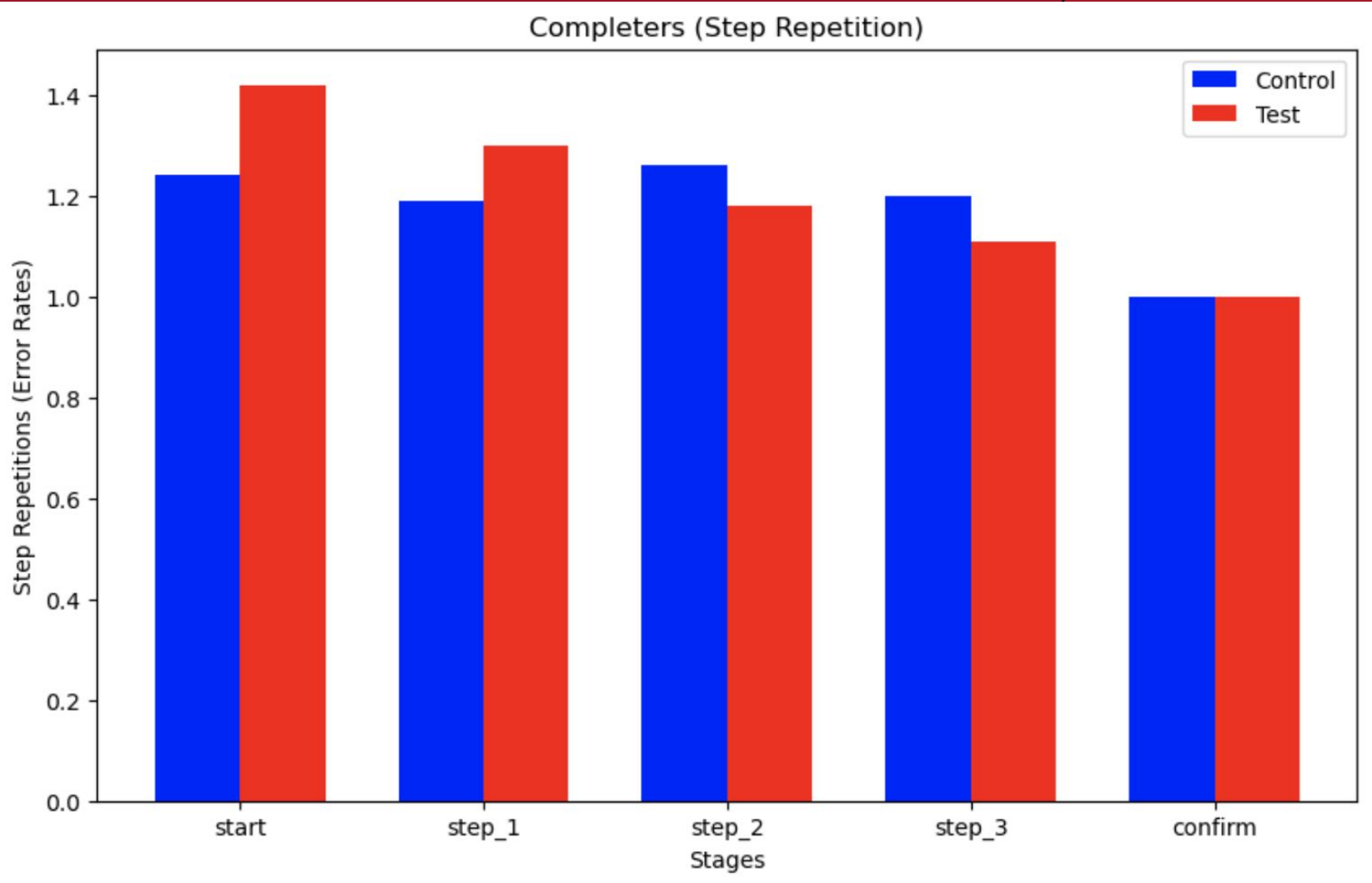
Abandonments(Non-Conversions)



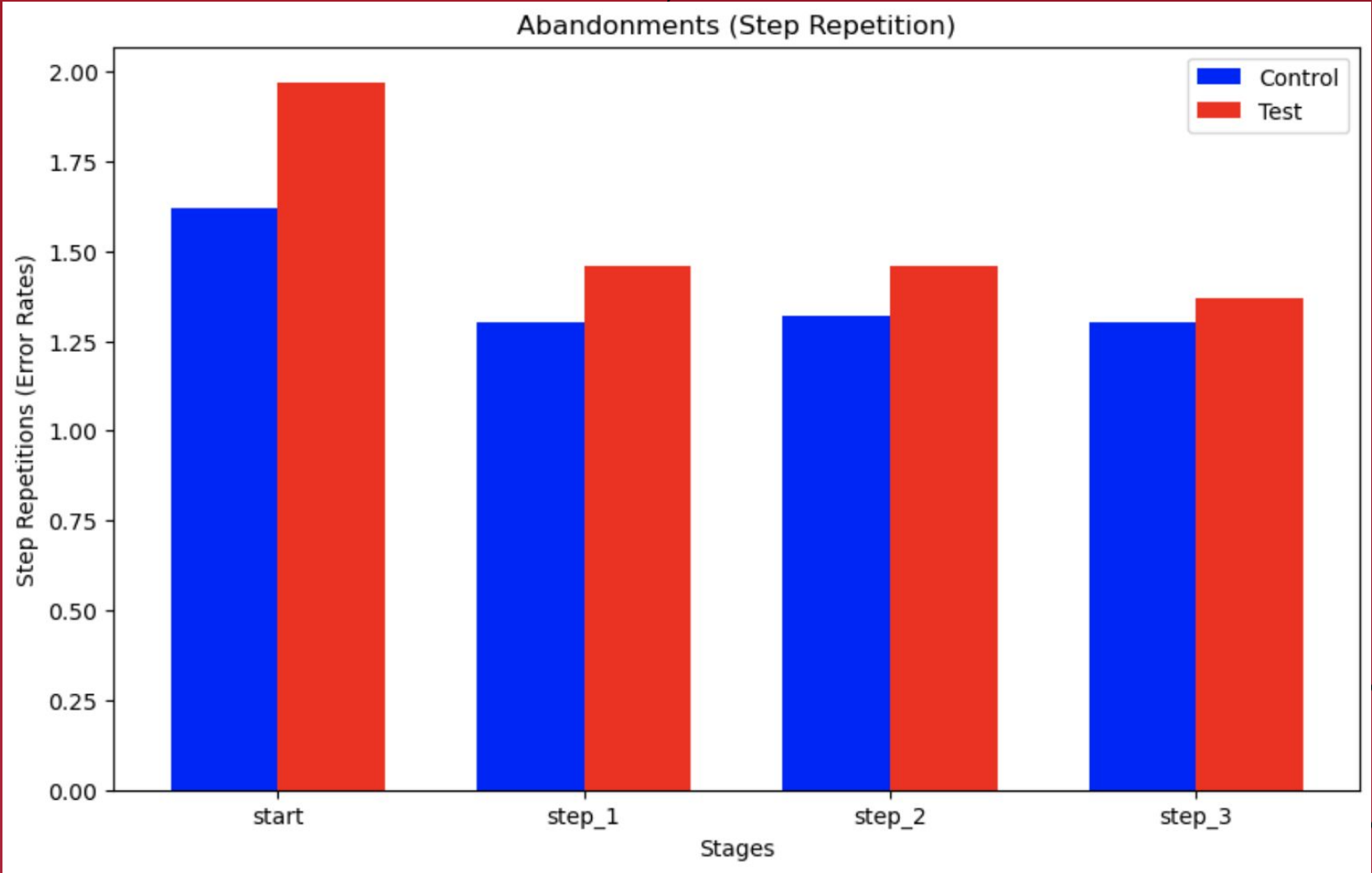
# Performance Metrics

## Error Rates (step repetition)

### Completers (Conversions)

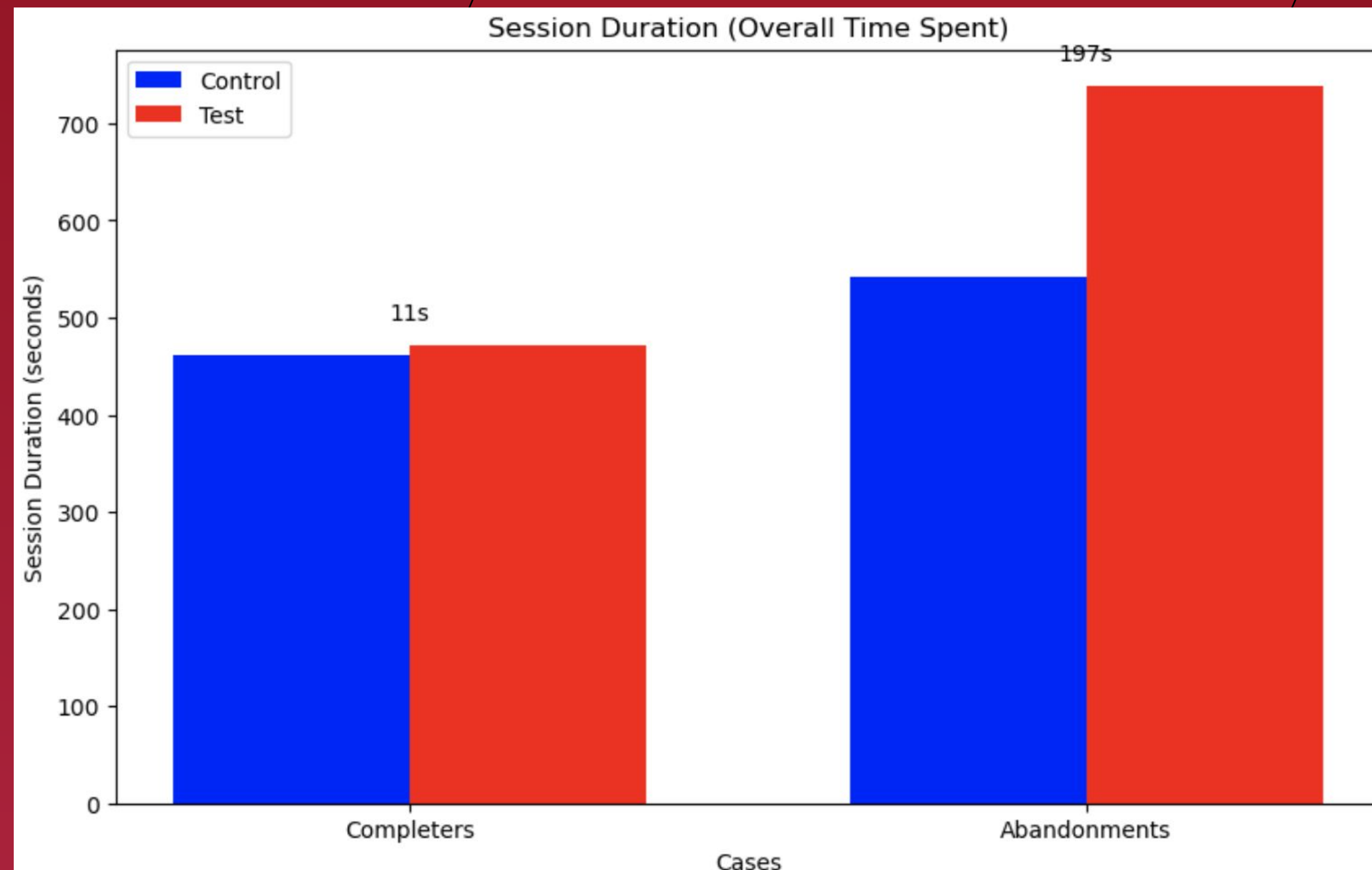


### Abandonments(Non-Conversions)

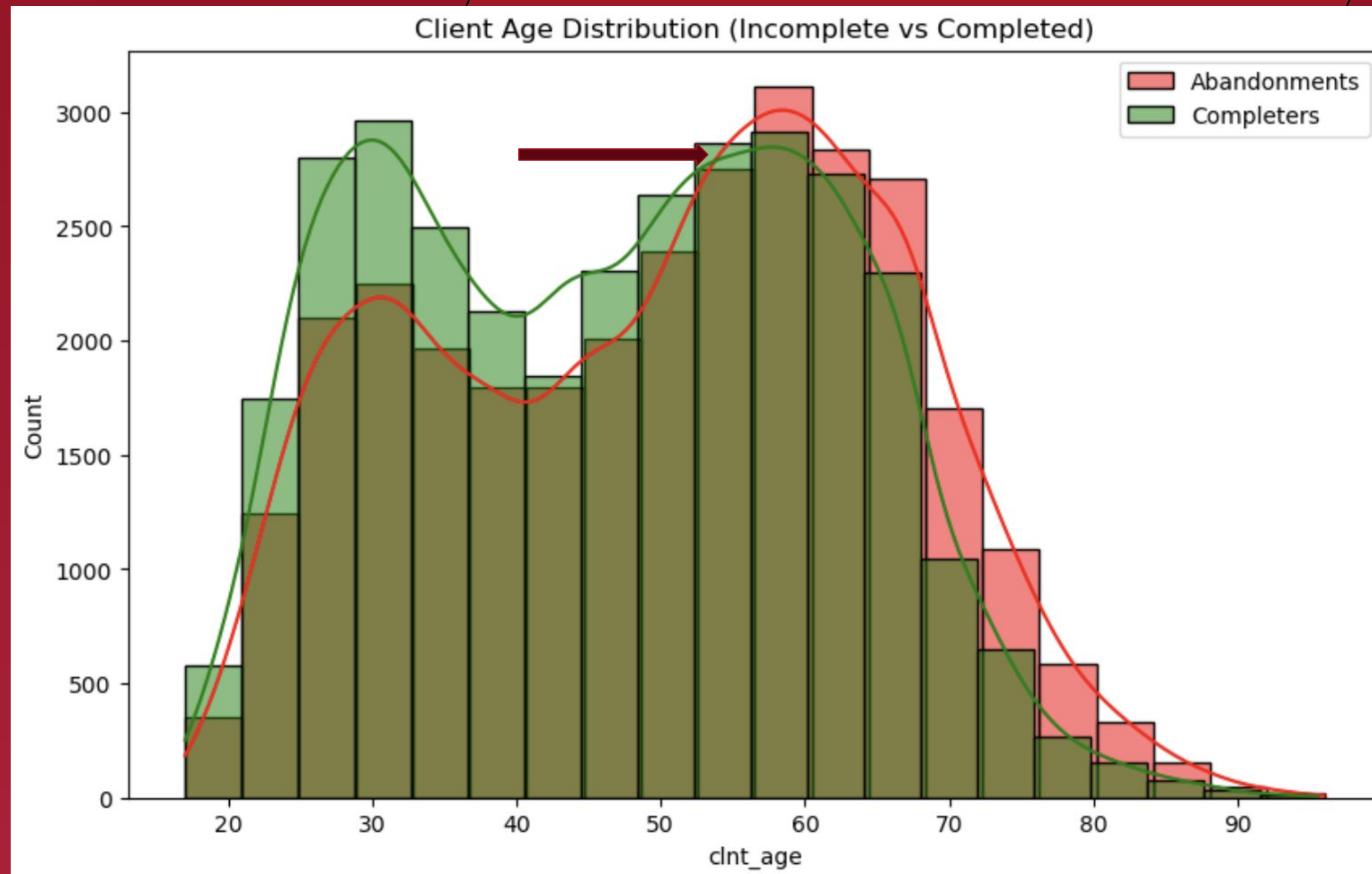


# Performance Metrics

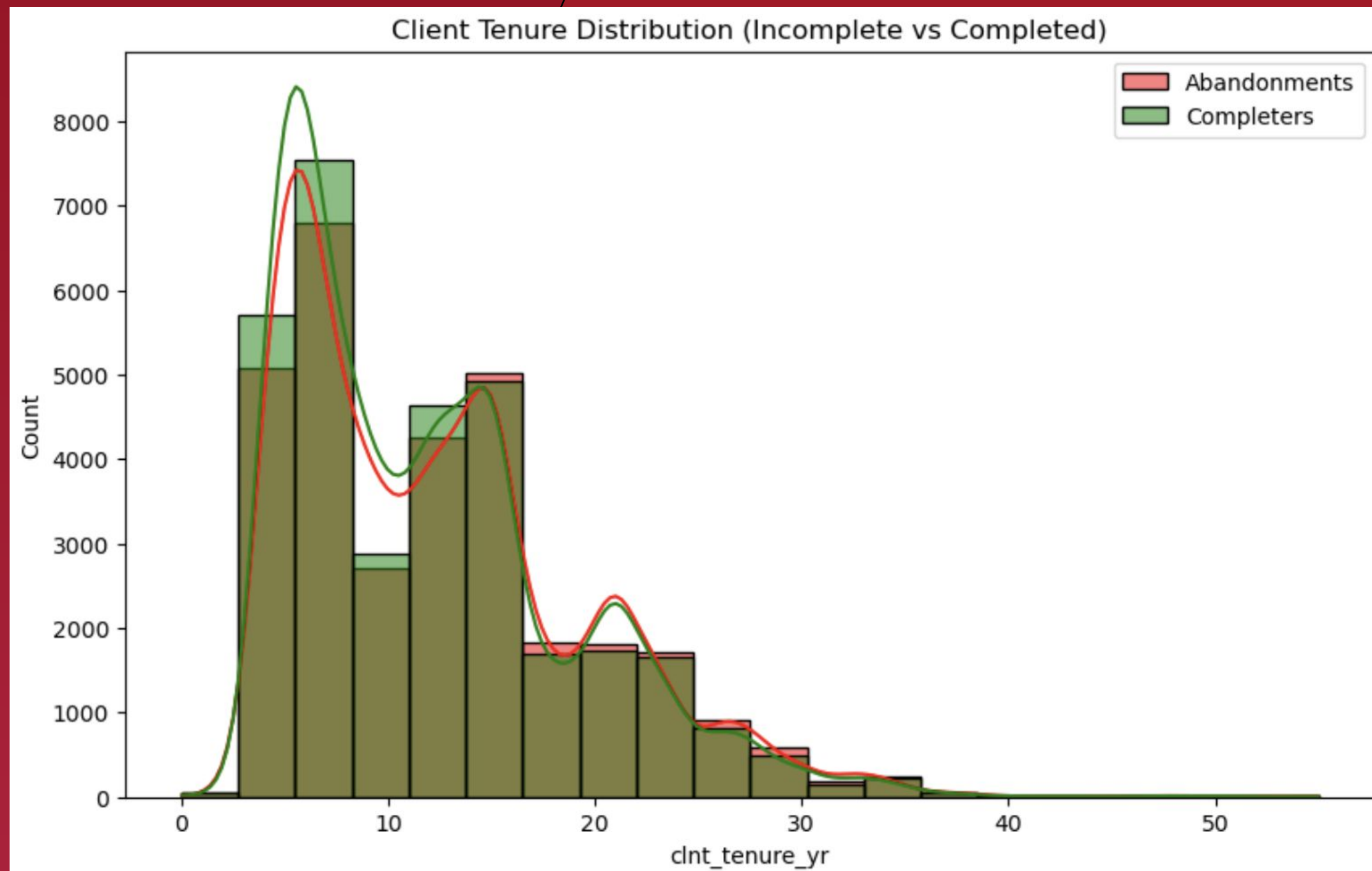
## Session Duration



# Completers vs Abandonments

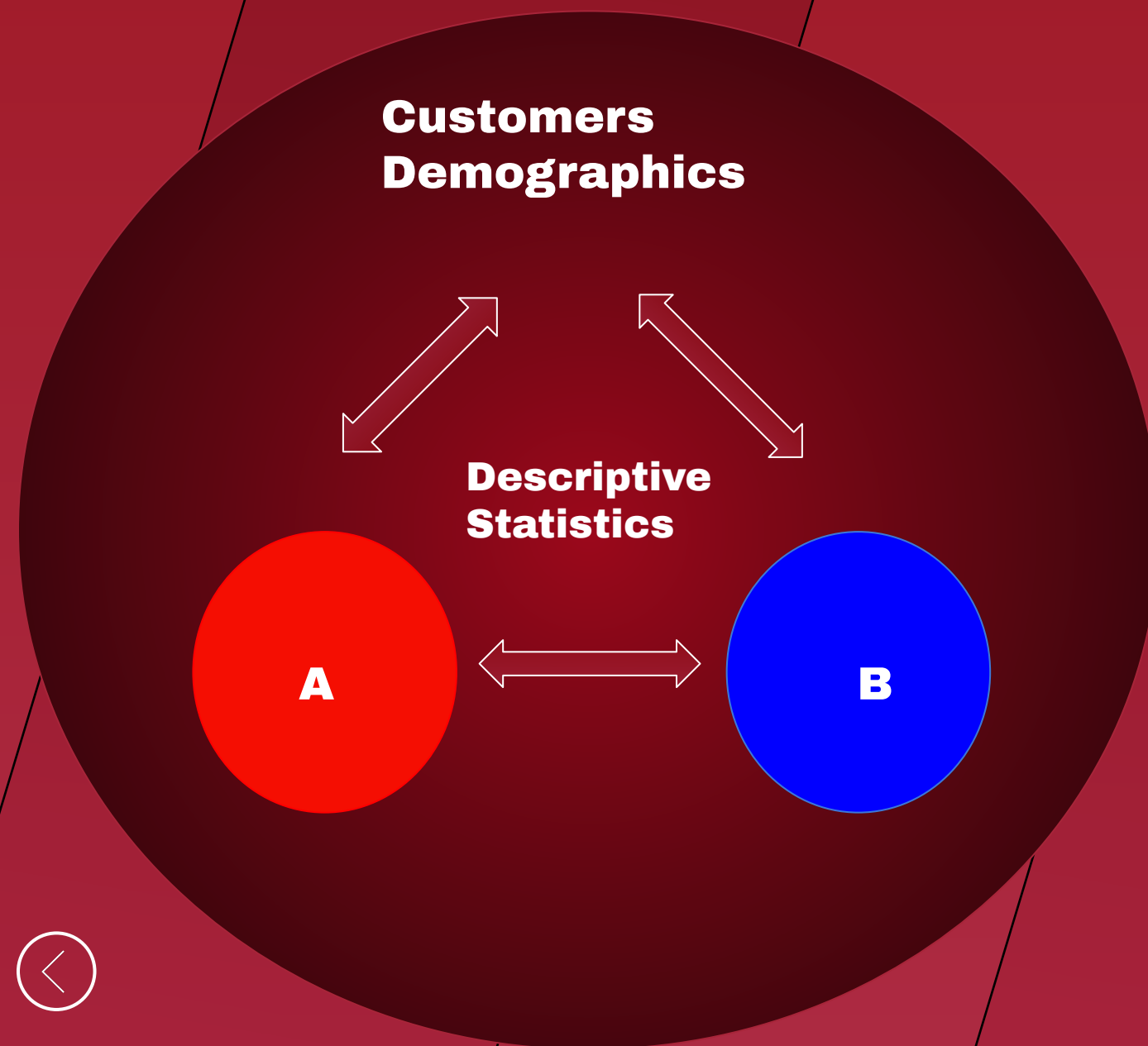


# Completers vs Abandonments



# Experiment Evaluation

- **Sampling: accuracy of the descriptive statistics between samples, and both representative of the population.**
- **Sampling time sufficient to gather enough data for statistical tests.**
- **Sampling period very inferior to the logon rate per client => importance of choosing the period.**
- **Interesting additional data would be an evaluation of the experience by the customers in both groups through a short survey**
- **Reproducing the experiment in the same conditions 3 weeks later.**





# Tableau Visualizations

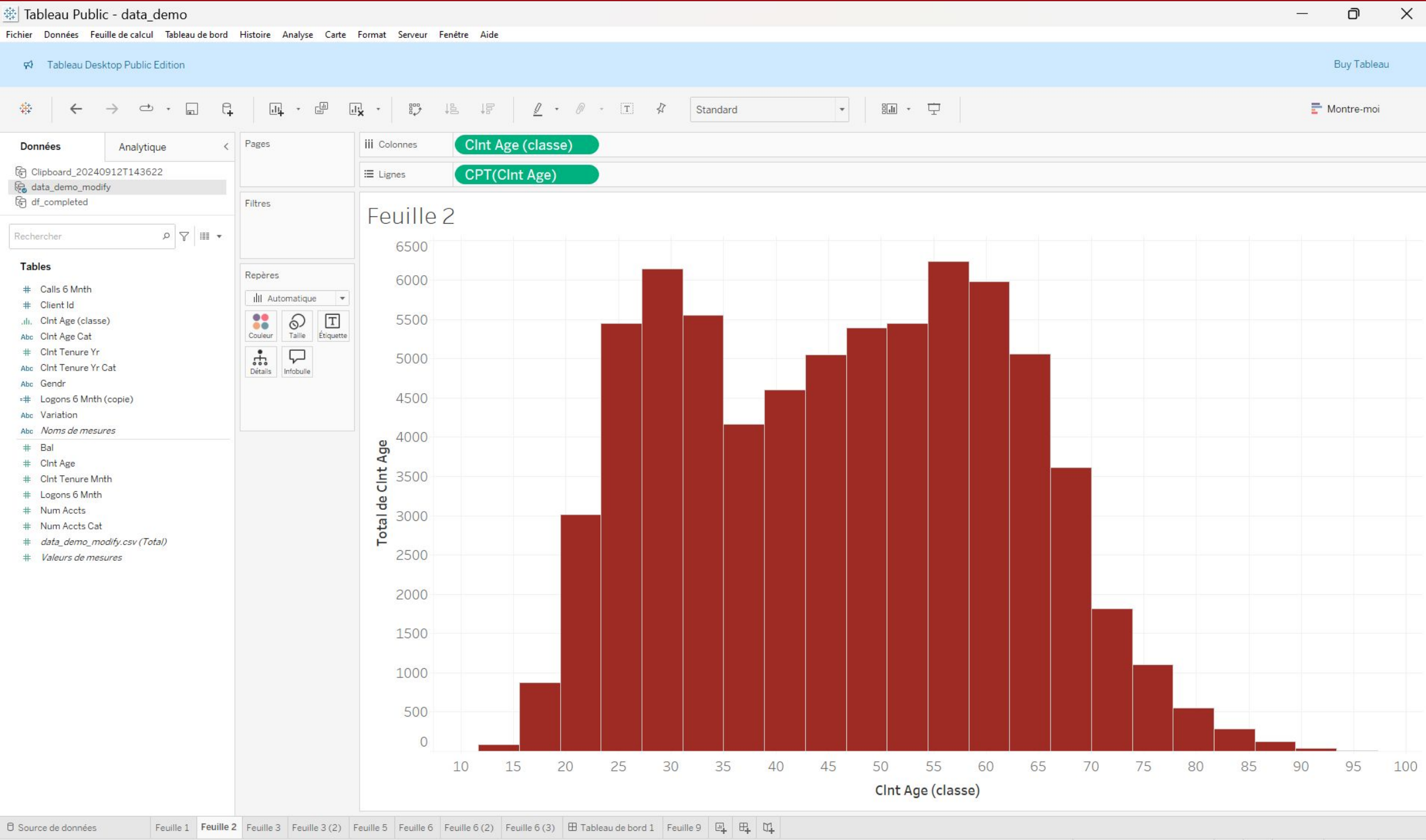
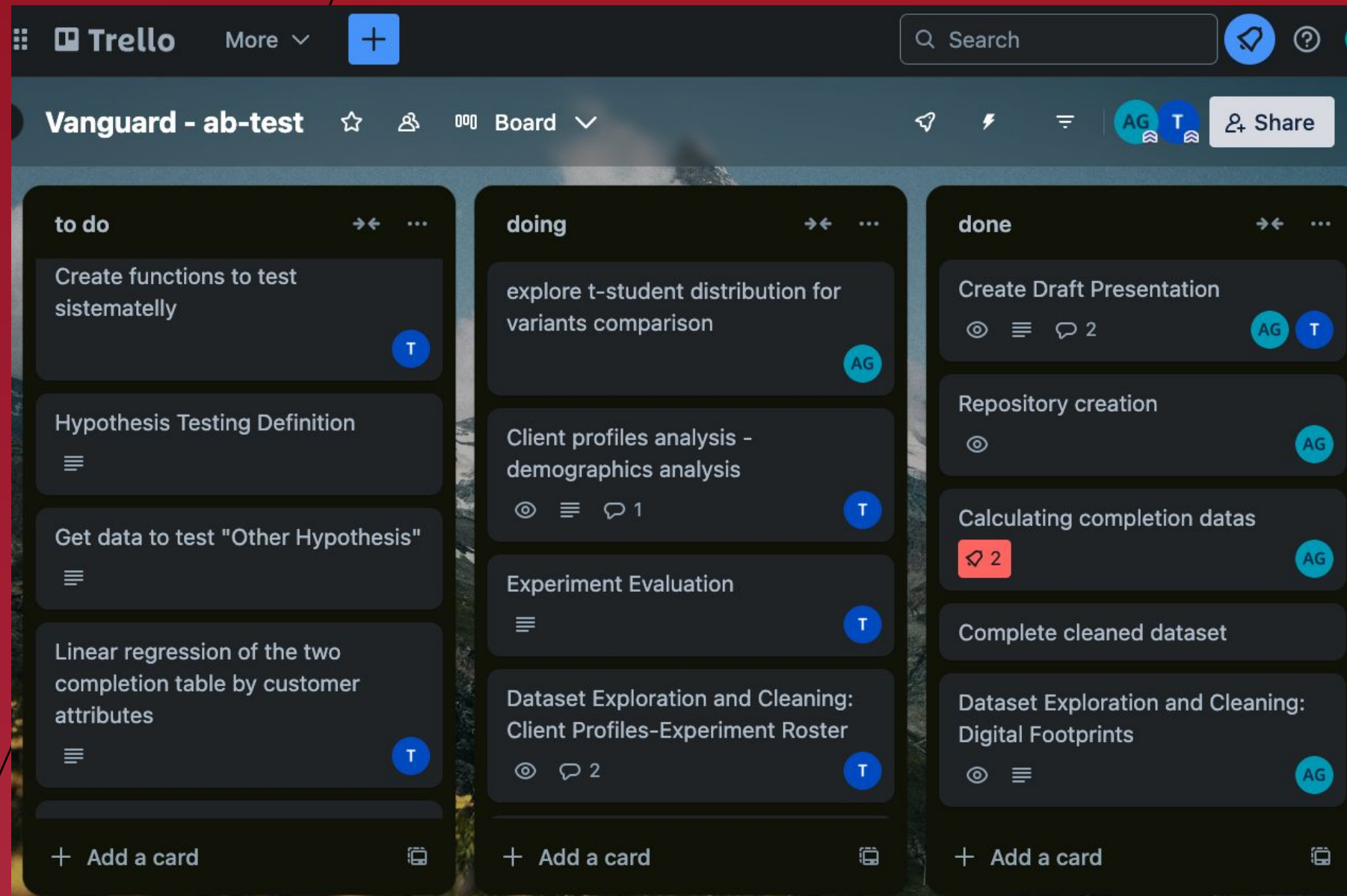


Tableau dashboard

# Teamwork & Project Management



**-Adaptation of the agile ceremonies (sprint planning meeting, daily stand-up meeting, sprint review meeting, and sprint retrospective meeting)**

**-Use of online collaborative tools for full access to all team members**

**-Use of atlassian product (Follow up of project advancement through trello)**



# Challenges & Learnings

- **Considering more data transformations in the EDA to facilitate the comprehension of data and facilitating the correlation testing.**
- **Keeping the final hypothesis test as a goal while coding to ensure easy access to the appropriate data.**
- **Making sure everyone understand the methodology of others rather than only the results.**
- **Discussion and team spirit increases both your work and your well-being.**
- **Git will always be gitting.**



# Conclusions



- **UI Effectiveness:** The new UI improves completion rates for those who complete the process, but users who abandon struggle significantly more.
- **User Friction:** Abandoning users in the test group spend much more time (+197 seconds) before giving up, indicating confusion or frustration.

## Demographic Behavior:

- **Older (over 60)** users are more likely to abandon the process.
- **Newer clients (0-5 years)** are more engaged
- **Long-tenured clients (10+ years)** are more likely to abandon, possibly due to discomfort with digital processes.

# Recommendations



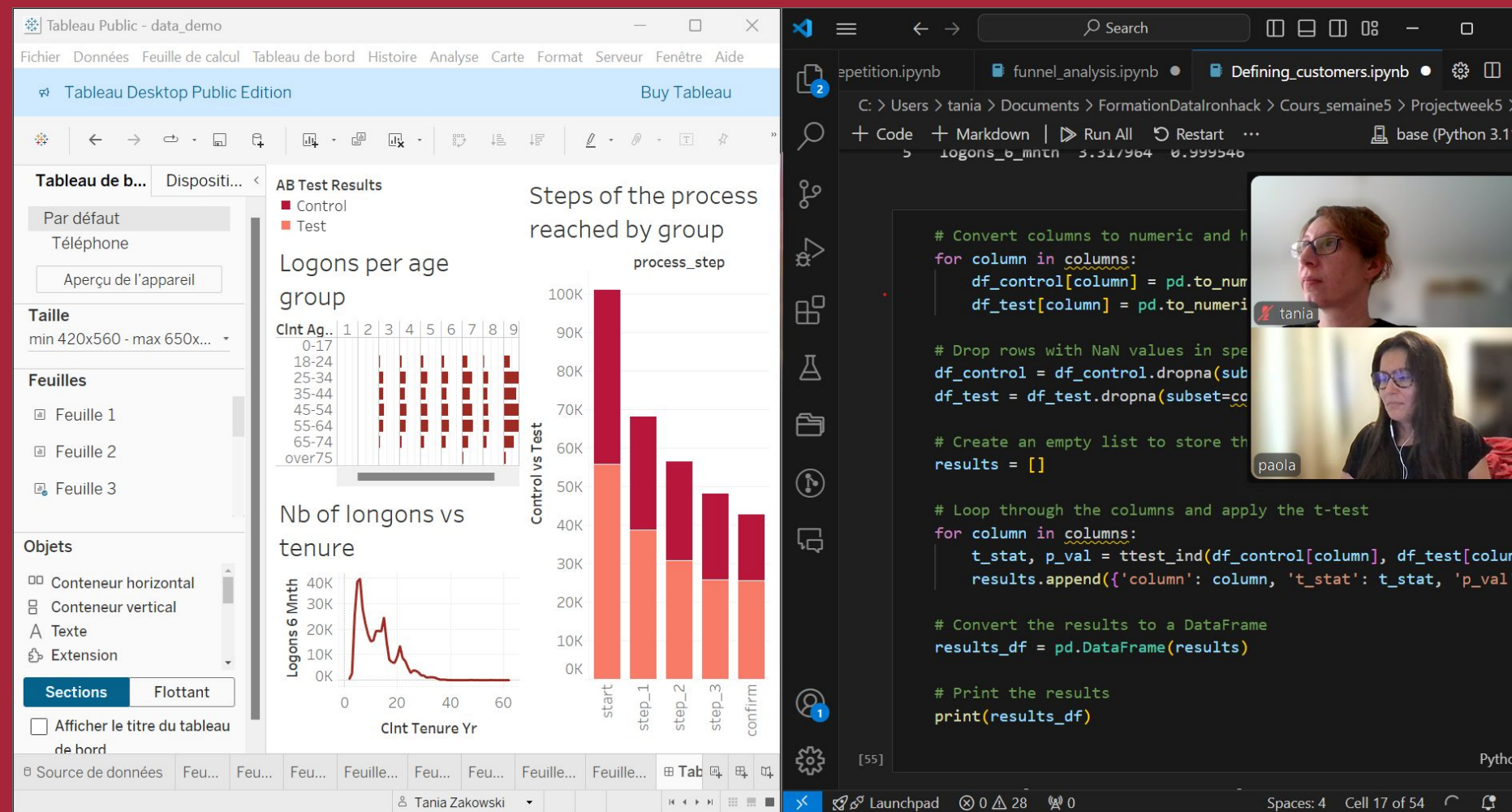
**Implement the new features in production.**

- **Simplify the UI for Long-Term Clients:** Provide a simplified interface or personalized assistance (live chat, phone support) to help users with 10+ years of tenure.
- **Tailor UI for Different Age Groups:**
  - **Younger users:** Make the UI faster and more engaging (gamification, mobile optimization).
  - **Older users:** Focus on usability improvements (larger fonts, clear navigation).
- **Address Drop-Offs at Critical Steps:** Analyze key steps to reduce friction and confusion.
- **Provide Real-Time Support for At-Risk Users:** Use real-time help (chat, guidance) to assist users struggling with certain steps.
- **Monitor Performance by Tenure:** Target re-engagement campaigns and offer incentives to long-tenured clients to reduce abandonment.



# Thank You For Your Attention

Vanguard®



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