



UX/UI Digital Evolution

Data Analyst
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PROJECT BRIEF

Company Background

The Vanguard Group

- The **US-based investment** management company
- **Online financial trading platform** offering financial products and services (e.g. Mutual funds, ETFs, stocks, bonds, etc.)




Project Overview

- **Digital transformation** became a global trend
- CX team - Launch **NEW digital customer interface**

WE STAND FOR VALUE TO INVESTORS!

WHAT IS OUR GOAL?

With the new UI:

- Conversion rates (CVR) 
- Return on investment (ROI) 
- Customer retention 

DATA OVERVIEW

Dataset Description

1. Client Profiles (df_final_demo):

Demographics like age, gender, and account details of our clients.

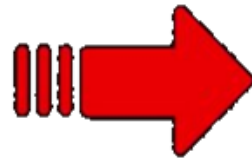
2. Digital Footprints (df_final_web_data):

A **detailed trace** of client interactions online, , divided into two parts: pt_1 and pt_2.

3. Experiment Roster

(df_final_experiment_clients):

A list revealing which clients were part of the grand experiment: **Test and Control**.



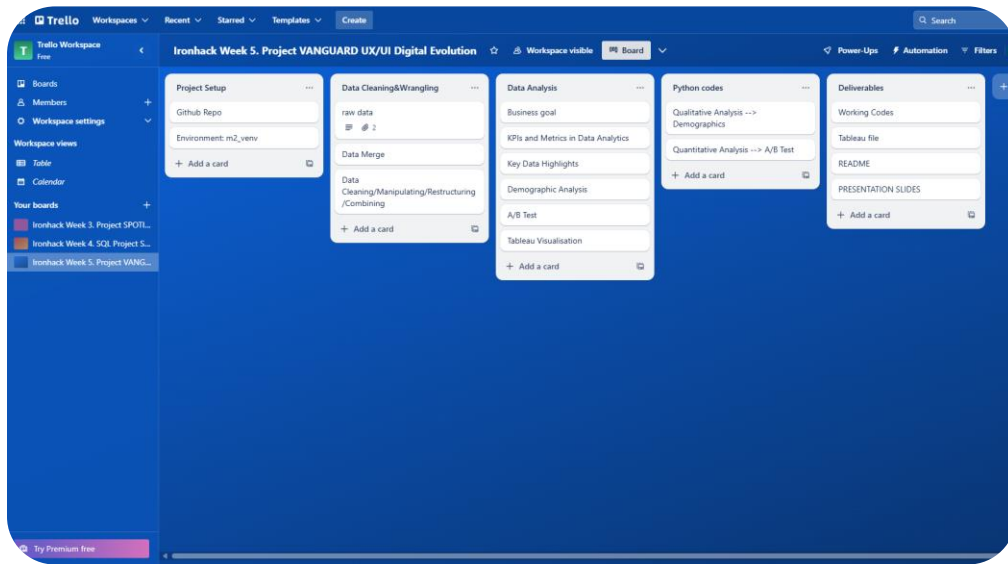
Data Objectives

- Combine Data Sets
- **Understand** Data Sets
 - Qualitative data
 - Quantitative data
- Data Cleaning and Wrangling
- Define **Key Metrics/KPIs**
- **Hypothesis Testing** Using Data
- **Data Visualization Using Tableau**
- User Profiles and Business Analysis

METHODOLOGY

Project Management

Agile & Trello Kanban

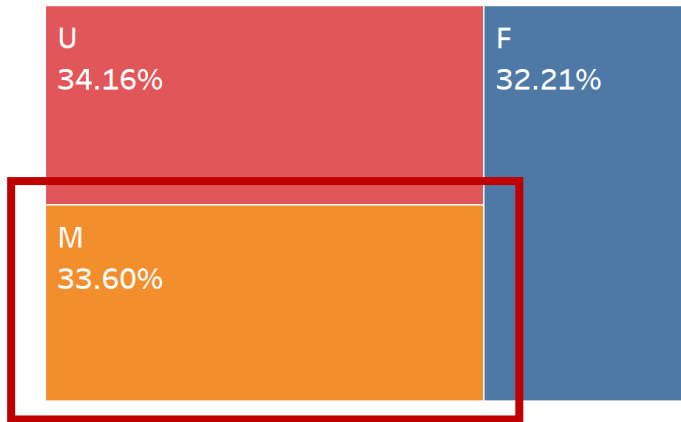


Data Analysis

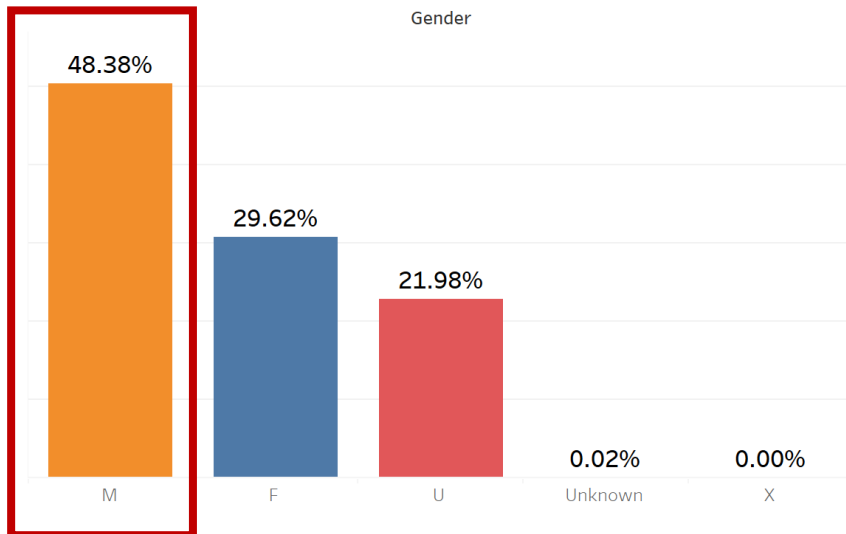
- Exploratory Data Analysis (EDA)
- TABLEAU
- A/B Testing
- Statistics

CUSTOMER PROFILES

Gender Ratio



Account Balances by Gender



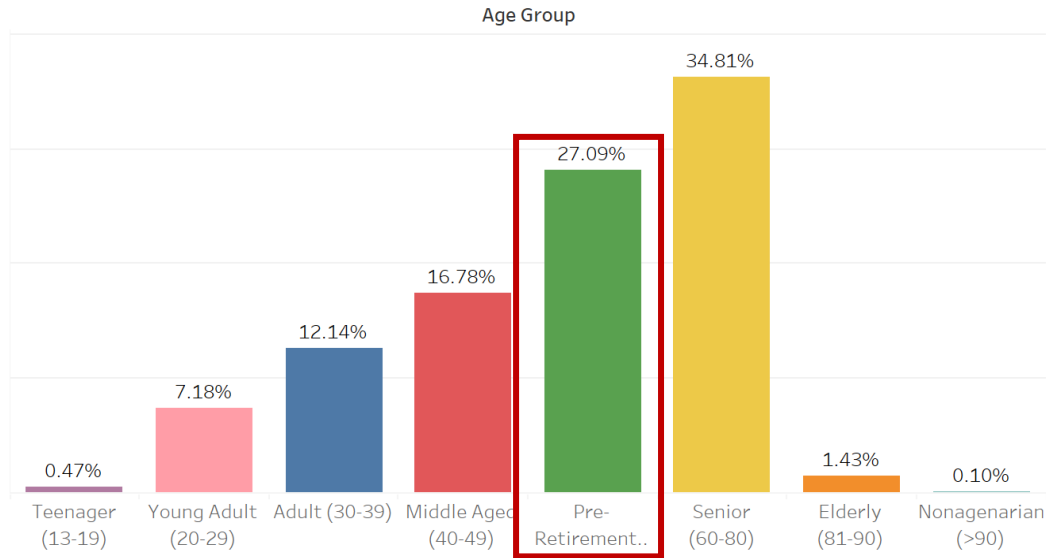
Initial findings 1

- **Insight 1:** Gender ratio is evenly split between Male (M) and Female (F), with a notable proportion categorized as Undefined, Non-binary, or No Information.
- **Insight 2:** Men's account balances are on average 20% higher than women's.

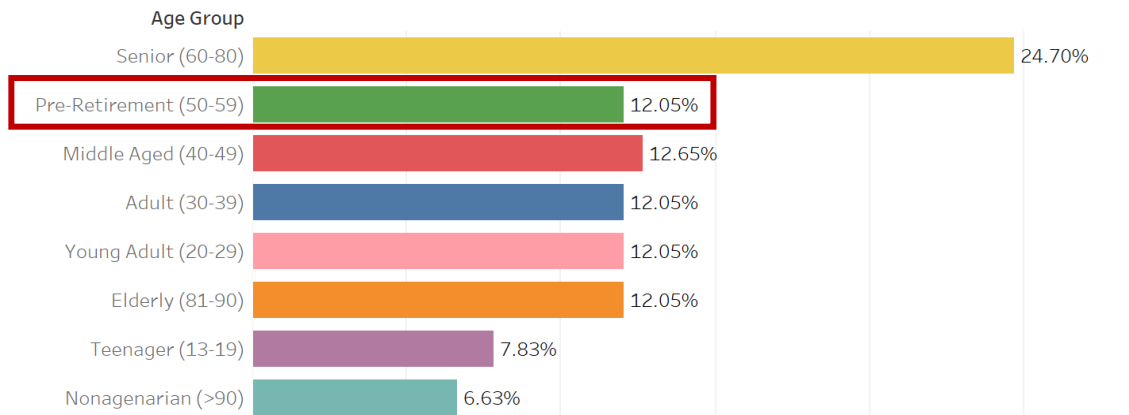
→ Potential indication that male clients allocate more funds towards investments.

CUSTOMER PROFILES

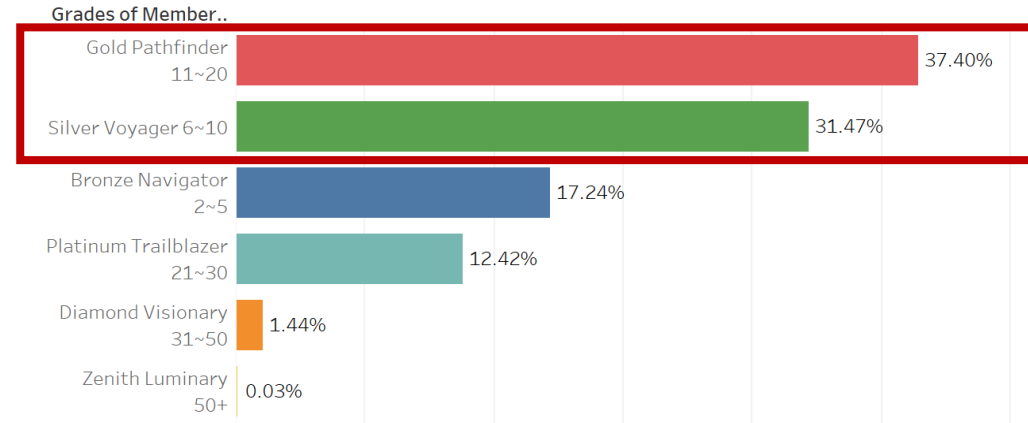
Account Balances by Age



Age Distribution



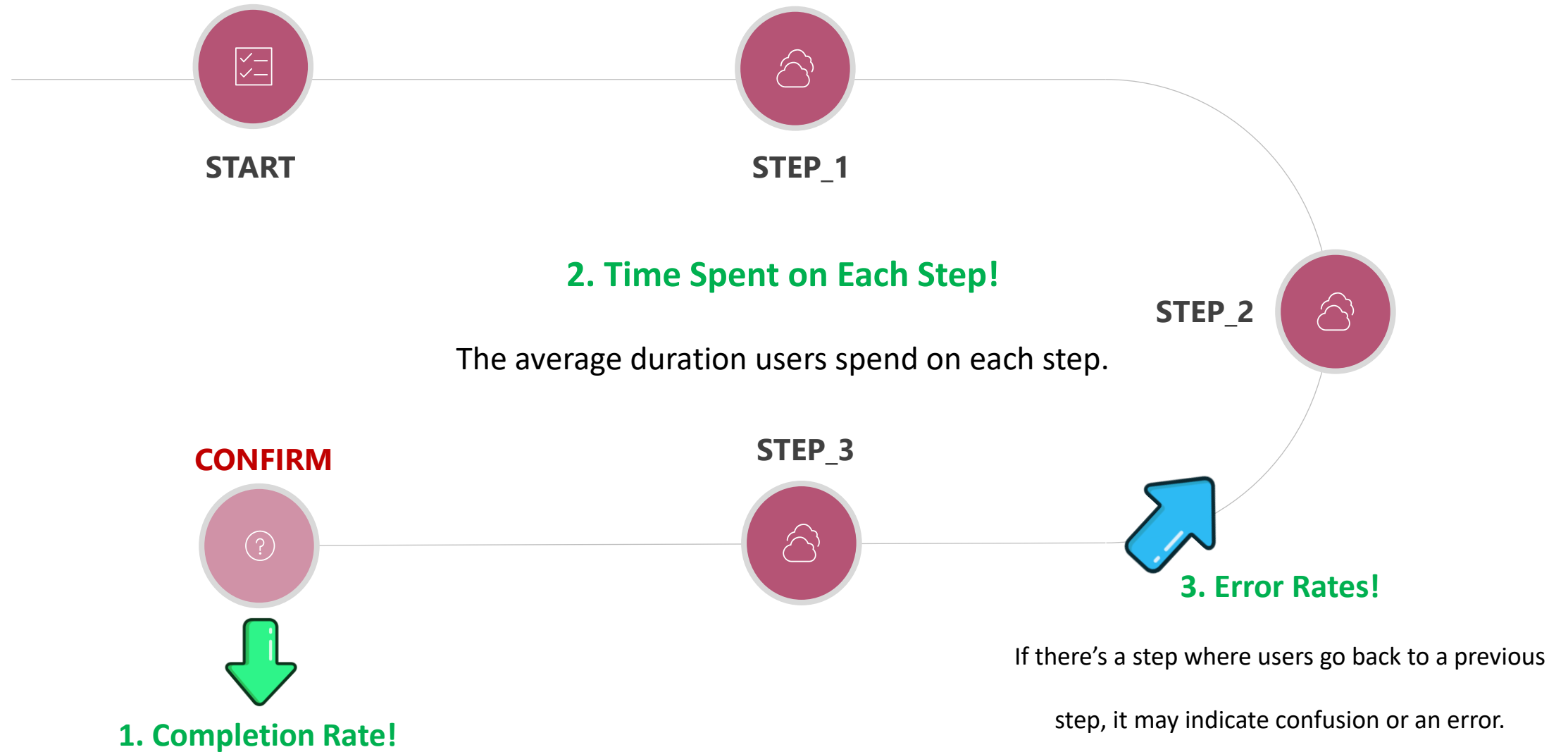
Grades of Membership



Initial findings 2

- **Insight 1:** Over 50% of clients have tenure of 6-20 years.
- **Insight 2:** Pre-retirement age group (50-59) has 50% fewer clients than the senior group, but their account balances are only 25% lower.
 → Potential indication that Pre-retirement clients are significant investors, indicating a strong investment trend before retirement.

PERFORMANCE METRICS/KPIs



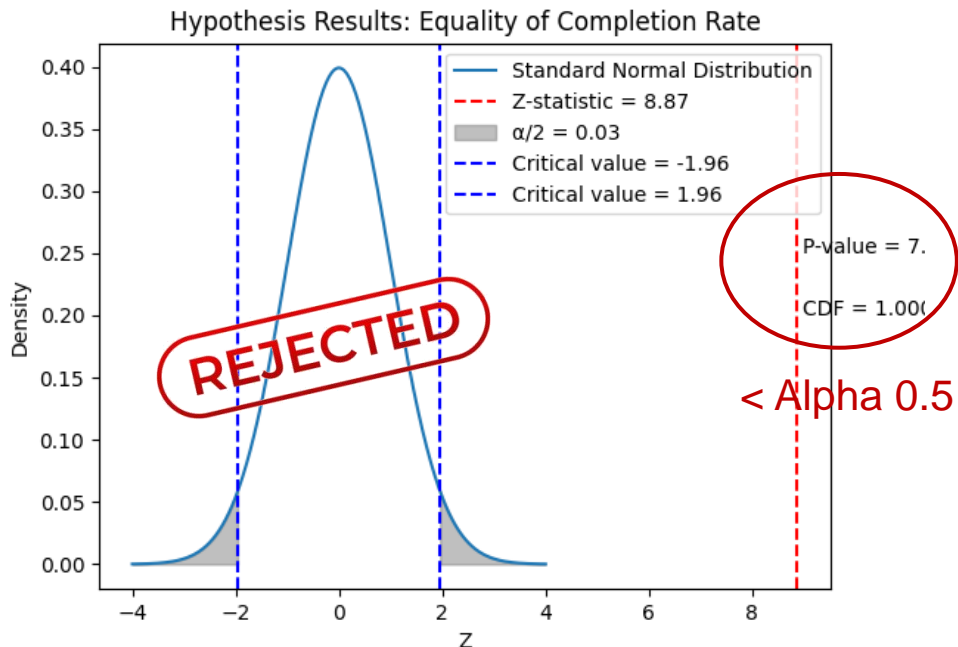
HYPOTHESIS TESTING 1 – Completion Rates

TWO SAMPLE PROPORTION Z-TEST

EQUAL?

H0: The completion rate for the Test group (new) = the completion rate for the Control group (old).

H1: The completion rate for the Test group (new) != the completion rate for the Control group (old).



Increased ?%

H0: The increased completion rate for the Test group (new) is **less than** the completion rate for the Control group (old) **by 5%.**

H1: The increased completion rate for the Test group (new) is **greater than** the completion rate for the Control group (old design) **by 5%.**

Z-statistic: -177.9074724792

P=1.0 > Alpha 0.5

ACCEPT

CONCLUSION:

Completion Rates of two groups are **NOT EQUAL**, but **increased <5%**

→ Potentially indication that the new interface may improve guidance towards higher completion rates, but with minimal impact on effectiveness, suggesting a **low ROI.**

HYPOTHESIS TESTING 2 – Time Spent on Each Step

TWO SAMPLE T-TEST

H0: There is **no significant difference** in time spent on each step between the Test and Control groups.

H1: There is **significant difference** in time spent on each step between the Test and Control groups.

Hypothesis Testing Results:

	Step	T-Statistic	P-Value	Significant
0	step_1	1.035563	3.004104e-01	False
1	step_2	-1.926237	5.408386e-02	False
2	step_3	-0.415325	6.779058e-01	False
3	start	11.976639	5.247120e-33	True
4	confirm	-7.901798	2.821152e-15	True

CONCLUSION:

- **step_1/2/3:** No significant differences in time spent between the control and test groups.
- **start:** Significant **increase in time spent** in the test group.
- **confirm:** Significant **decrease in time spent** in the test group.

→ *Potentially indication that the new interface attracted more clients initially, but made it easier for them to give up halfway.*

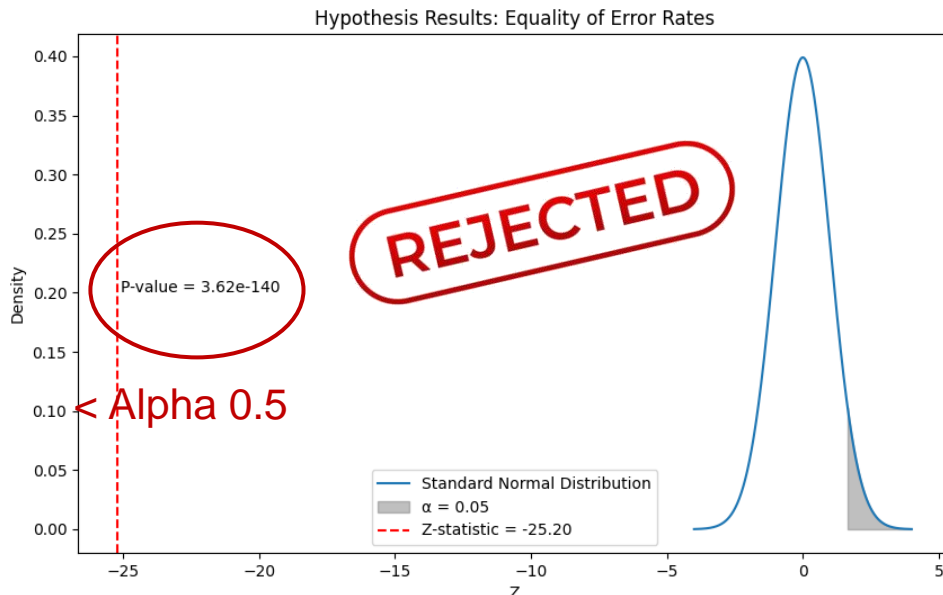
HYPOTHESIS TESTING 3 – Error Rates

TWO SAMPLE PROPORTION Z-TEST

EQUAL?

H0: There **is no significant difference** in error rates between the Test and Control groups.

H1: There **is significant difference** in error rates between the Test and Control groups.



?%

H0: The increased error rate for the Test group (new) is **greater than** the error rate for the Control group (old) **by 5%.**

H1: The increased error rate for the Test group (new) is **less than** the error rate for the Control group (old design) **by 5%.**

Z-statistic: 25.204049796278067

P-value=1.0 > Alpha 0.5

ACCEPT

CONCLUSION:

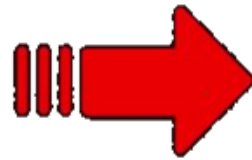
Completion Rates of two groups are **NOT EQUAL**, and Test group **increased >5%**

→ Potentially indication that the new interface has led clients to revisit the last step more frequently, resulting in **higher error rates.**

CHALLENGES&LEARNINGS

Challenges

- Merged datasets without a clear understanding
- Spent time analysing irrelevant metrics.
- Don't know where to begin with hypothesis testing.
- Visualisations were not engaging or persuasive



Learnings

- Ensure clarity on dataset structure
- Focus analysis on key metrics
- Use essential statistical principles
- Create compelling narratives with visual data

CONCLUSION

EXTERNAL BUSINESS

Results of A/B test

1. New interface shows only slight impact (<5%)
2. High initial engagement but significantly drop-off halfway
3. Low ROI, not recommended for further investment on this version of UI.

Customer Persona:

1. Potential target customer: Pre-retirement male clients with accounts tenure 6-20 years
 2. Potential issue: Attraction of incorrect audience?
- UI version Iteration based on customer behaviors: new design aligns with features important to target customers

INTERNAL ORGANISATION

Importance of BI/DA roles:

1. Cost savings by preventing unnecessary expenditures
2. Enhanced Operational Efficiency

Contribution to cross-functional stakeholders:

Enhances risk management, strategic planning, and executive decision-making



THANK YOU