HORNET

1. Requirements

The main goal of this assessment is to understand your thought process. So please give:

- All code used
- All plots
- All steps taken
- Thinking process for each step

Please use Python/R and write all your code in a Notebook.

2. Data

a. In 2024, we will implement a feature where users can purchase an in-app currency that they could use to purchase stickers to give as gifts to other users within our live video streaming service. The feature has 3 different implementations (versions) and we want to see if there is a difference between the different versions. The versions have been designed to try and influence the number of purchases and the value of each purchase.

b. The larger the purchase amount, the larger the quantity of in-app currency the user gets in their account.

c. In the table provided, there are 5 columns:

- Date: The date that the user was active
- User ID: a unique identifier
- Variant: Which version of the feature the user got
- Purchases: The number of purchases that the user made
- Total purchased amount: Total value of the purchases made that day

3. Questions

a. ABC Test - we want to learn a few things from this test:

    i. Is there a difference between the different versions regarding daily revenue brought in by the feature

    ii. User behavior difference between the different versions:

        1. Is there a difference in single purchase values

        2. Is there a difference in number of purchases

    iii. Difference in Retention Rates? (Create a metric on how best to see if users are returning)

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Important Notes

- If you find difference(s) between one of the versions or among all the versions, which of the three versions should we roll-out to our users? Please provide everything you can think of:
  - All the hypotheses
  - Data checks
  - Statistical test used (and why)
  - Plots
  - Conclusions

- When analysing Daily Retention/Acquisition rates over time:
  - Retention can be looked at in different ways.
  - We ideally want to see users returning over time.

- We encourage you to document your code and analysis process thoroughly, including comments, explanations, and annotations where necessary.