Your manager would like you to

● Perform a historical CLV analysis to understand the company’s current customers base

● Identify which group(s) to target for the next marketing campaign

● Provide recommendations/strategies to acquire, retain or increase value of selected customer segment

DELIVERABLE

1.Notebook 补全notebook就可以了

2.A write-up including the following: 这个你不用写，看一下做参考， 补全notebook就可以了

* + Business requirements

We need to launch a new marketing campaign with a limited marketing budget next month, can you identify who should we target, how and why?

* + CLV Analysis
    - Calculate the 4 KPIs, Plot and describe the trends of each metric
      * AVO,Trend (monthly)
      * Purchase frequency ,Trend (monthly)
      * GM,Trend (monthly)
      * Churn rate,Trend
      * Summary of findings/insights based on the trends. What did the data tell you?

(Some of the questions you could answer:

When did we sell the most of our products? Was it only based on an increase on volume or each customer purchase more?

When should we launch the discount event etc?

Is there a seasonality, if it does how should we prevent it ?

How much our profits are affected by supplier risks?)

etc

* + Calculate CLV
    - Combine with the 4 KPIs to explain your insights

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* + Customer Segments Analysis
    - Calculate RFM

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* + - K-means clustering model
      * Optional Task: implementing K-means from raw numpy
    - Describe the characteristic of each segment

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* + Actionable recommendations to the manager
    - Which segment should we target and the rationale
    - Recommendations on how to improve the 4 KPIs

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* Submit your Notebook (.ipynb) and write-up by 6/28