

# BANK CUSTOMER SEGMENTATION

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For project's material please visit : [github.com/peerapat-t](https://github.com/peerapat-t)

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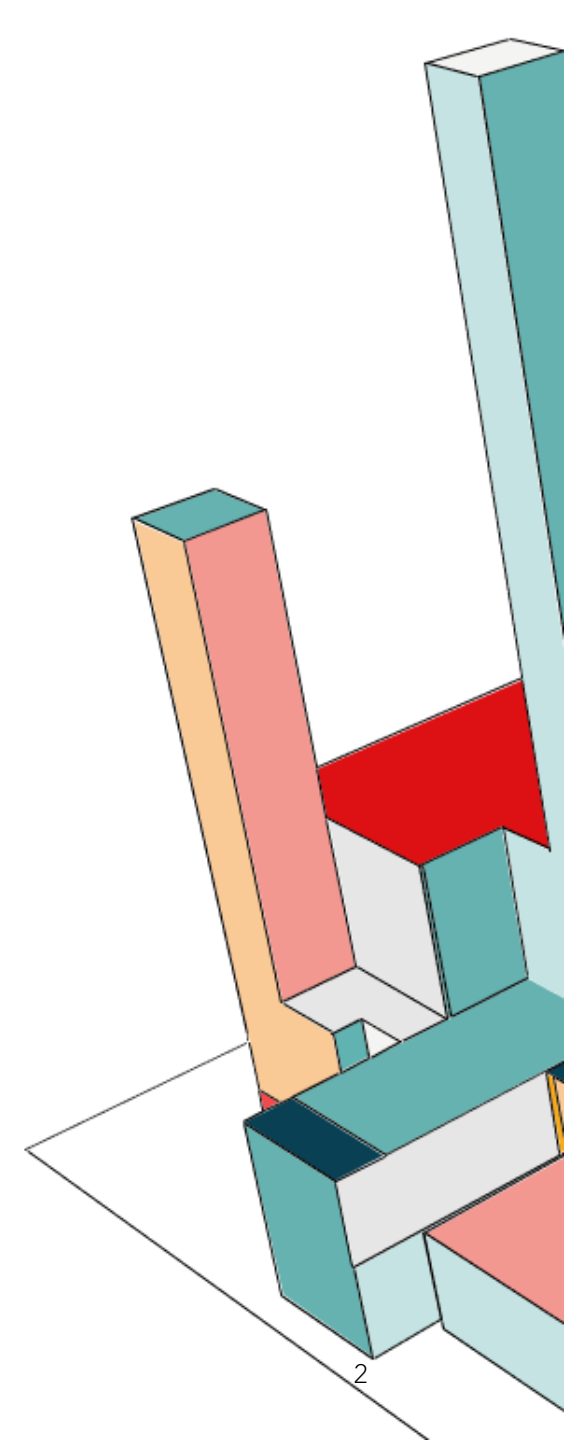
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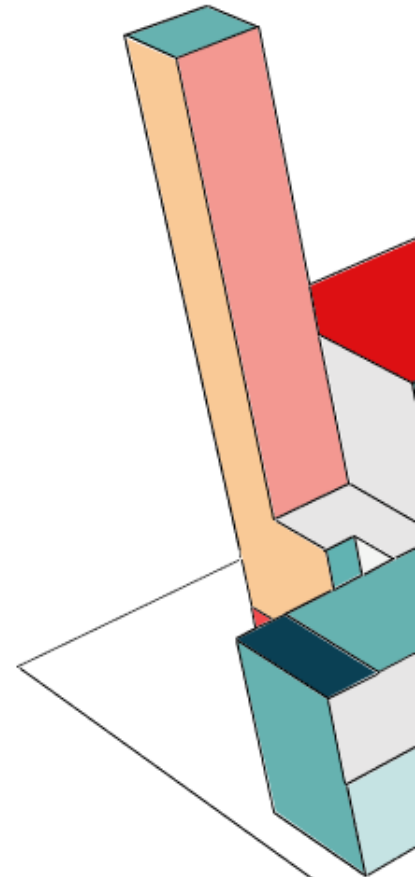


# 1. BUSINESS PROBLEM

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## 1.1 Personalized marketing

- In the dynamic landscape of banking, marked by intense competition and diverse customer preferences, personalized banking services offer several benefits:
  - **Heightened Engagement:** Tailored banking services capture customer attention and engagement by presenting relevant solutions and information aligned with individual financial needs.
  - **Strengthened Customer Loyalty:** Personalized experiences and solutions cultivate stronger customer loyalty, fostering enduring relationships with the bank.
  - **Increased Conversion Rates:** Customized service approaches enhance the likelihood of transforming potential clients into active customers through targeted guidance and offerings.
  - **Optimized Resource Allocation:** Tailored banking strategies streamline resource allocation by focusing on segments with the highest likelihood of positive response.
  - **Deeper Insights:** Utilizing clustering models provides profound insights into customer financial behaviors, facilitating informed decision-making and the refinement of banking products and services.

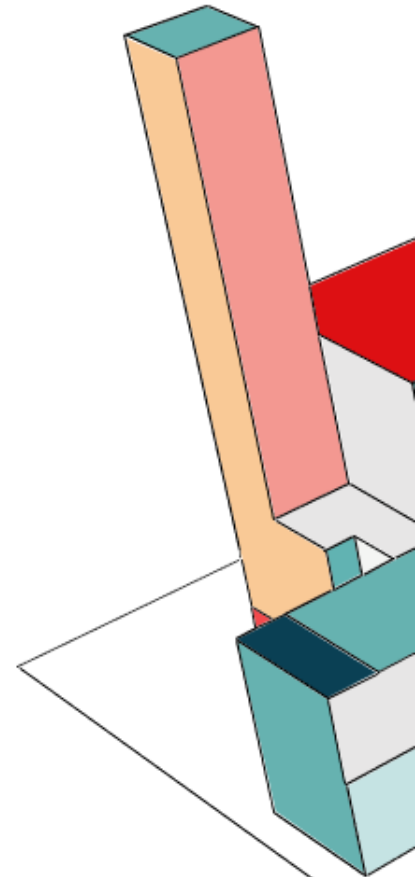


# 2. HOW TO SOLVE THIS PROBLEM

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## 2.1 Clustering model

- In the realm of banking, segmentation models serve as a crucial tool for comprehending customers by categorizing them into segments founded on common traits and behaviors.
- Leveraging data-driven methodologies, these models pinpoint patterns and resemblances among customers, empowering banks to meticulously personalize their strategies and outreach efforts.

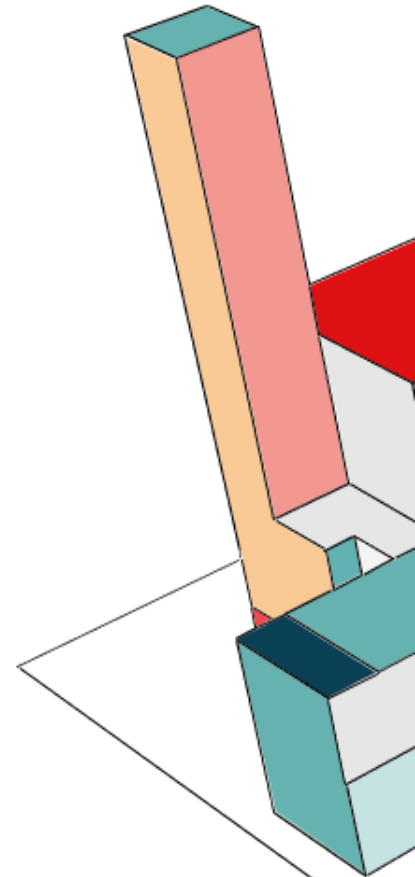


# 3. DATA

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## 3.1 Features

- This dataset comprises over 1 million transactions involving more than 800,000 customers of an Indian bank. The dataset encompasses various details including:
  - Customer age (date of birth)
  - Location
  - Gender
  - Account balance during the transaction
  - Transaction amount, and more.



# 4. SOLUTION

## 4.1 Customer's segment

- Following the model's results, we have 4 groups of customers.

### 1. Urban man (50%)



1. Reside in large cities
2. Male
3. Oldest
4. Highest account balance
5. Most frequent transactions

### 2. Urban woman (20%)



1. Reside in large cities
2. Female
3. Largest average transaction amount

### 3. Suburban man (20%)

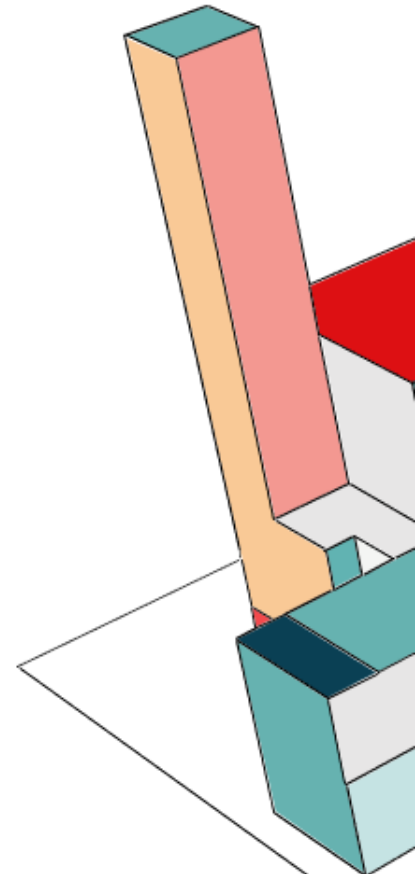


1. Reside in suburban areas
2. Male
3. Higher account balance compared to suburban women
4. More frequent transactions than suburban women

### 4. Suburban woman (10%)



1. Reside in suburban areas
2. Female
3. Youngest age
4. Larger average transaction amount compared to suburban men



# 4. SOLUTION

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## 4.1 Customer's segment

### 1. Urban man

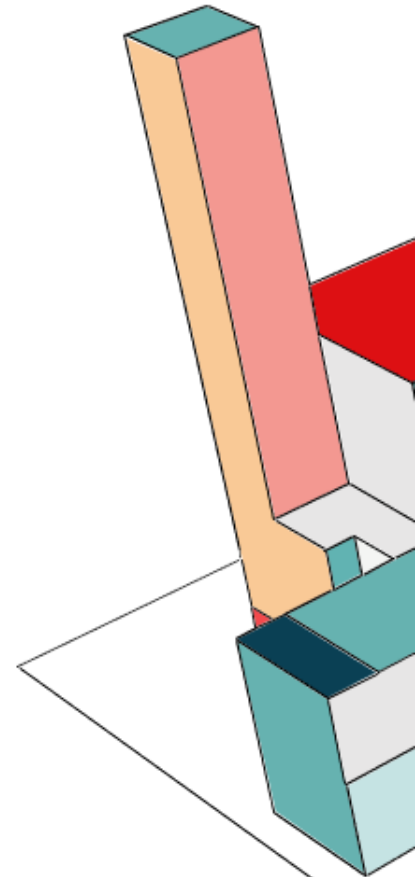


- Assume that men use bank transactions for daily expenses (smaller transaction amounts but higher frequency), we should consider collaborating with urban-zone shops, such as coffee shops, to provide promotions through bank transactions.
- Given the affluence of this group, we can also recommend financial asset opportunities.

### 2. Urban woman



- Assume that women use bank transactions for purchases like fashion clothing or cosmetics (less frequent but larger amounts), we should explore collaboration with fashion and cosmetic shops in urban zones to offer promotions through bank transactions.



# 4. SOLUTION

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## 4.1 Customer's segment

### 1. Urban man

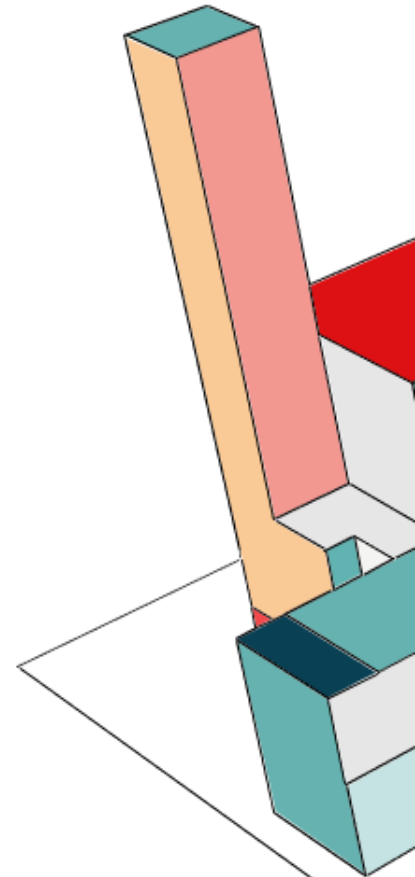


- Assume that men use bank transactions for daily expenses (smaller transaction amounts but higher frequency), a collaboration strategy could involve suburban-zone shops, such as coffee shops, to provide promotional offers using bank transactions.

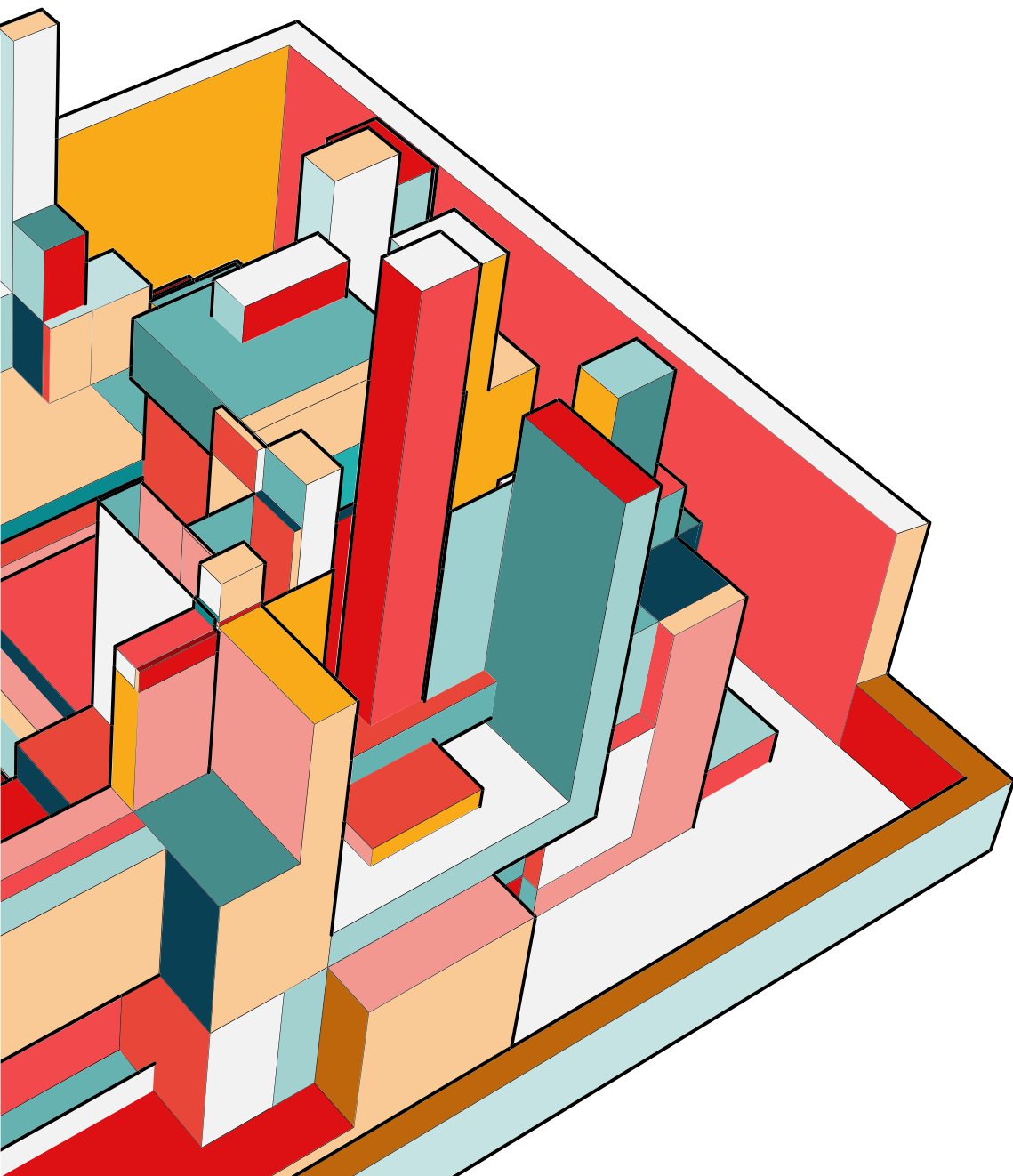
### 4. Suburban woman



- Assume that women use bank transactions for purchases like fashion clothing or cosmetics (less frequent but larger amounts), collaborating with fashion and cosmetic shops in suburban zones to provide promotions through bank transactions could be effective.







**END OF BUSINESS  
SESSION**

# 4. MODEL

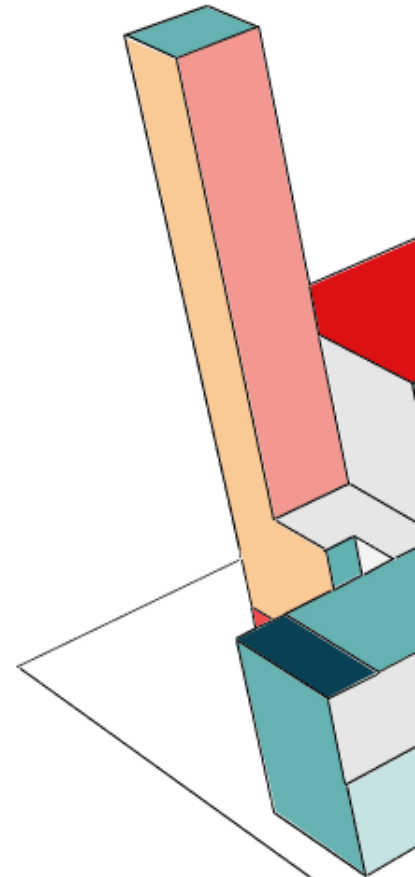
## 4.2 Technique used

Step	Topic	Cost
1	Normalized	<ul style="list-style-type: none"><li>• Use Min-Max scaling to normalize the data.</li></ul>
2	Clustering	<ul style="list-style-type: none"><li>• Implement K-Means clustering to group similar data points.</li></ul>
3	Selecting K	<ul style="list-style-type: none"><li>• Determine the optimal number of clusters using the elbow method.</li><li>• Analyze attribute means to select a meaningful value for K in the context of marketing segmentation.</li></ul>
4	Interpreting	<ul style="list-style-type: none"><li>• Transition from unsupervised to supervised techniques for cluster interpretation.</li><li>• Utilize decision tree algorithms to extract and understand feature importance within each cluster.</li></ul>

# 5. FUTURE WORK

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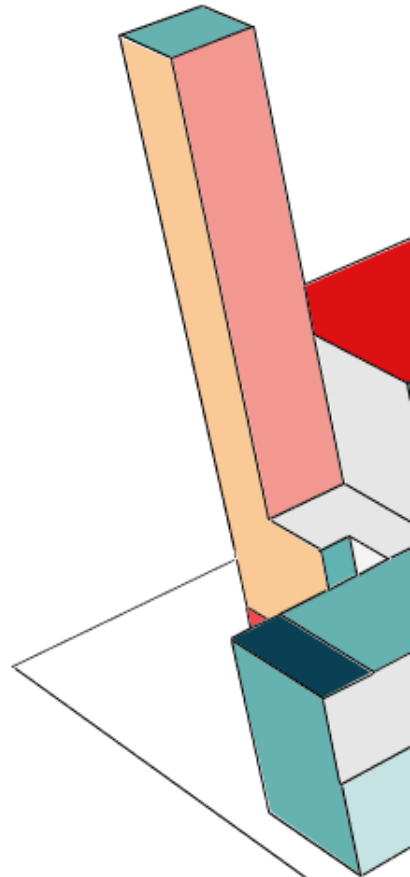
- Try another algorithm, such as DBSCAN or hierarchical clustering.
- Create new features to better understand customer behavior. However, this will require re-clustering.
- Monitor the distribution of new data; if the distribution changes significantly, re-clustering should be considered

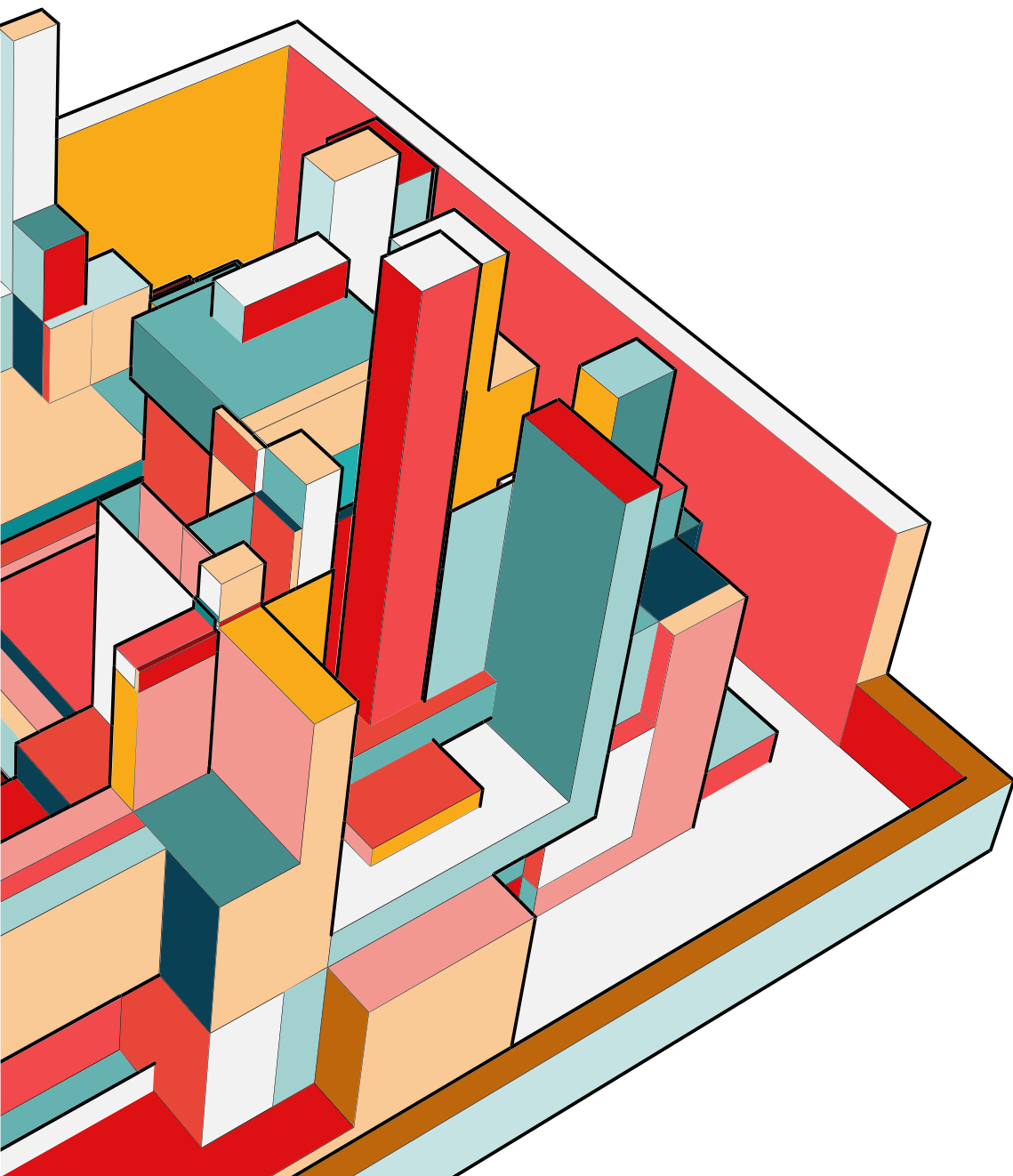


# 6. REFERENCE

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**END OF  
PRESENTATION**



# ABOUT AUTHOR



- Peerapat Tancharoen holds a Bachelor's degree in Economics from Srinakharinwirot University, graduating with first honors and a GPA of 3.67. He also earned a Master's degree in Economics from Thammasat University, achieving a GPA of 3.98.
- With four years of experience as a Data Scientist at Kasikorn Asset Management, Peerapat is dedicated to utilizing machine learning models to address intricate business challenges, notably in the realm of marketing. His passion lies in leveraging data-driven solutions to drive impactful outcomes.

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