

Outline:

1. Project Title:

Customer Personality Analysis Dashboard using Unsupervised Learning (DBSCAN & t-SNE)

2. Objective:

Briefly the purpose of Project:

To segment customers based on behavior, spending habits, and campaign acceptance, using DBSCAN clustering and visualized through t-SNE.

3. Dataset Info:

- Source: [Marketing Campaign Dataset]
- Features Used: Income, Recency, Total_Children, Total_Mnt_Spent, Total_Campaigns_Accepted, Education, Marital_Status, etc.
- Size: X rows, Y columns

4. Feature Engineering Done:

- $\text{Total_Children} = \text{Kidhome} + \text{Teenhome}$
- $\text{Total_Mnt_Spent} = \text{Total amount spent}$
- $\text{Total_Campaigns_Accepted} = \text{Sum of all campaign acceptances}$
- $\text{Age} = 2025 - \text{Year_Birth}$

5. Modeling Technique:

Used **DBSCAN** for clustering with different `eps` and `min_samples` values. t-SNE was used to reduce dimensionality for visualization.

6. Insights:

While DBSCAN returned only one cluster, the dataset still provided valuable insights into spending habits and campaign behavior.

7. Dashboard Features:

- t-SNE scatter plot
- Cluster summary
- Pie chart & bar chart

8. Conclusion & Future Work:

Although the data resulted in a single cluster, the process showcases solid data preparation, feature engineering, and dashboard development skills. Future iterations can explore other clustering techniques (like KMeans) for better separation.