

Customer segmentation using clustering

1. subject description

Customer segmentation is the practice of separating customers into groups that reflect similarities among customers in each cluster. It will divide customers into segments to optimize the significance of each customer to the business. To modify products according to distinct needs and behaviors of the customers. It also helps the business to cater to the concerns of different types of customers.

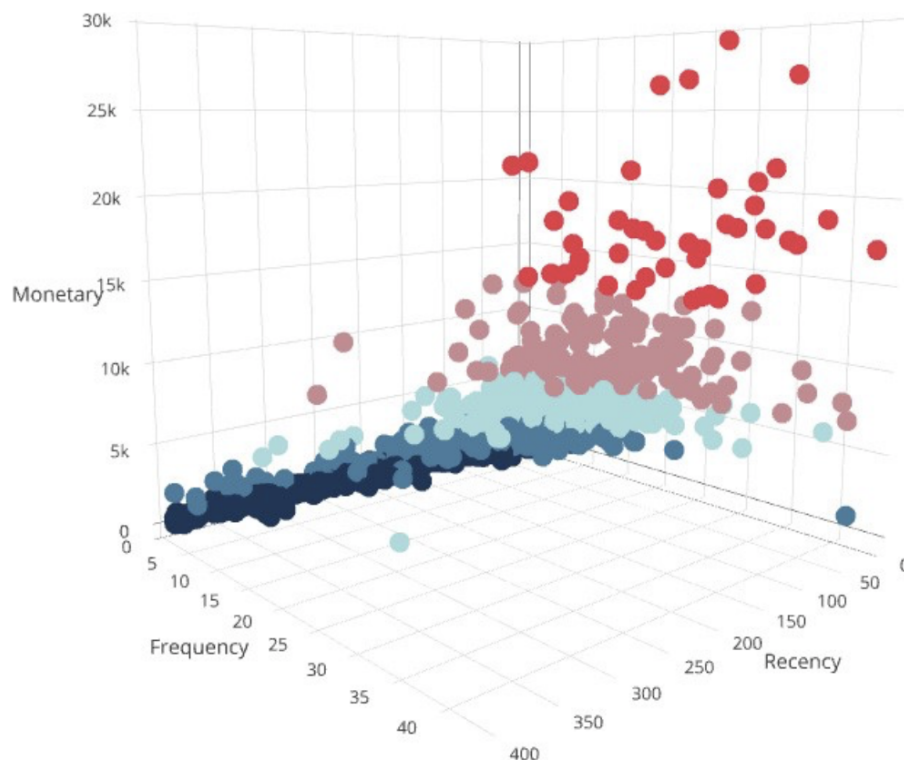
Unsupervised learning helps to divide data into homogeneous groups. This will enable them to detect the existing customer segments and the dominant features in each group.

In the following we introduce the project goals, data description evaluation measure and some important references.

2. goals

- Train a clustering model and define the adequate number of clusters.
- Analyze the clusters and add a label to each cluster based on dominant features.
- Show each customer classification.

3. previews



The figure below shows clusters of customer data which each cluster contains similar values according to its dominant features.



4. data description

Customer segmentation data contains 28 attributes of various types float, int and category.

↓ :

| | ID | Year_Birth | Education | Marital_Status | Income | Kidhome | Teenhome | Dt_Customer | Recency | MntWines | ... | NumWebVis |
|---|------|------------|------------|----------------|---------|---------|----------|-------------|---------|----------|-----|-----------|
| 0 | 5524 | 1957 | Graduation | Single | 58138.0 | 0 | 0 | 04-09-2012 | 58 | 635 | ... | 7 |
| 1 | 2174 | 1954 | Graduation | Single | 46344.0 | 1 | 1 | 08-03-2014 | 38 | 11 | ... | 5 |
| 2 | 4141 | 1965 | Graduation | Together | 71613.0 | 0 | 0 | 21-08-2013 | 26 | 426 | ... | 4 |
| 3 | 6182 | 1984 | Graduation | Together | 26646.0 | 1 | 0 | 10-02-2014 | 26 | 11 | ... | 6 |
| 4 | 5324 | 1981 | PhD | Married | 58293.0 | 1 | 0 | 19-01-2014 | 94 | 173 | ... | 5 |

5. evaluation measures

- clusters separability and homogeneity rate.

6. references

- <https://towardsdatascience.com/customer-segmentation-using-k-means-clustering-d33964f238c3>
- <https://medium.com/analytics-vidhya/customer-segmentation-using-cluster-analysis-ed1f3a7c5920>
- <https://www.sciencedirect.com/science/article/abs/pii/S1567422310000888>
- https://www.researchgate.net/profile/Juni-Nurma-Sari/publication/313737530_Review_on_Customer_Segmentation_Technique_on_Ecommerce/links/5b4ad31a45851519b4bc83c3/Review-on-Customer-Segmentation-Technique-on-Ecommerce.pdf