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Department of Computer Science and Engineering

High value customers identification for an E-Commerce company

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Abstract

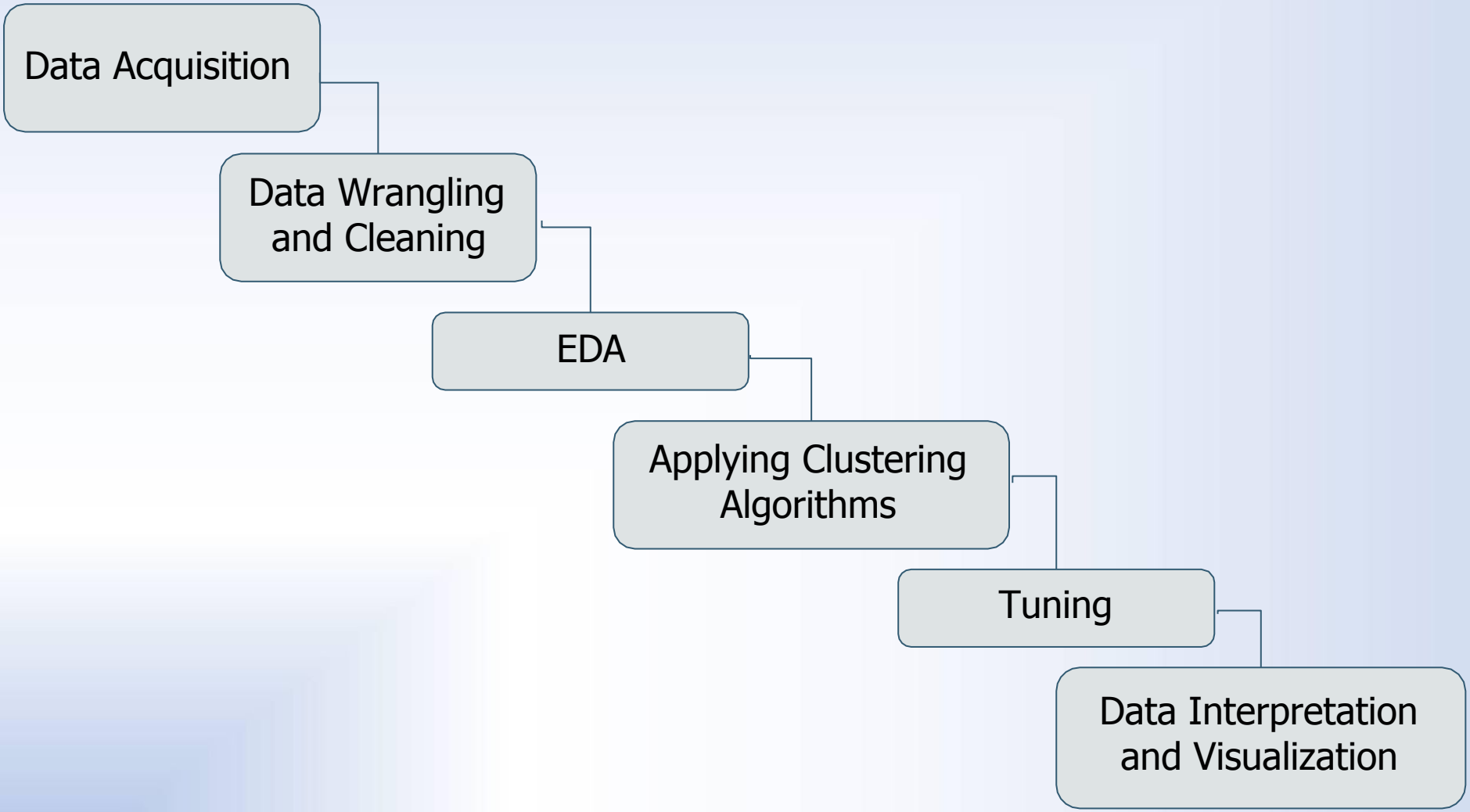
Problem Statement:

A UK-based online retail store has captured the sales data for different products for the period of one year (Nov 2016 to Dec 2017). The organization sells gifts primarily on the online platform. The customers who make a purchase consume directly for themselves. There are small businesses that buy in bulk and sell to other customers through the retail outlet channel.

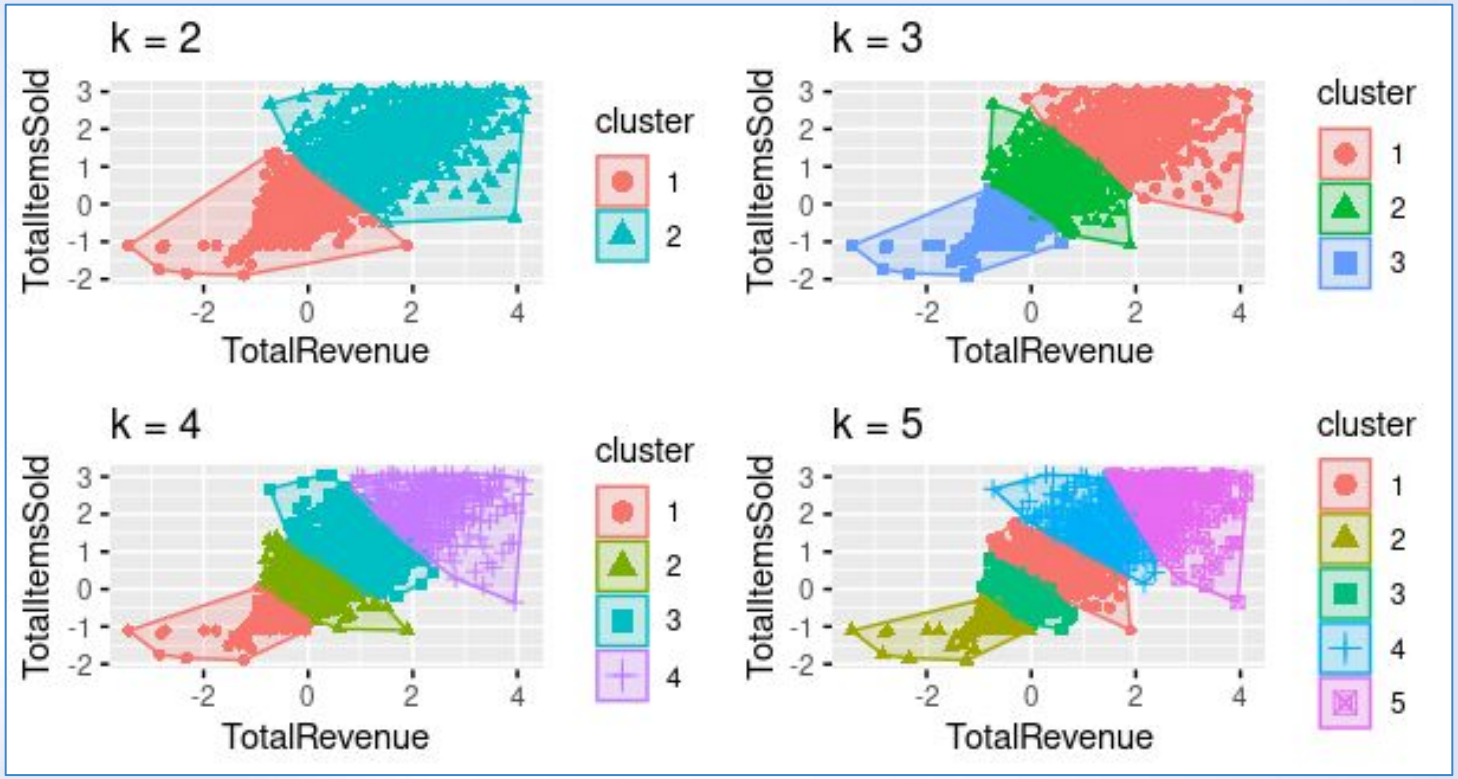
Project Objective:

The organization wants to roll out a loyalty program to the high-value customers after identification of segments. To use the clustering methodology to segment customers into Retail and wholesale(high and low valued) groups.

Architecture

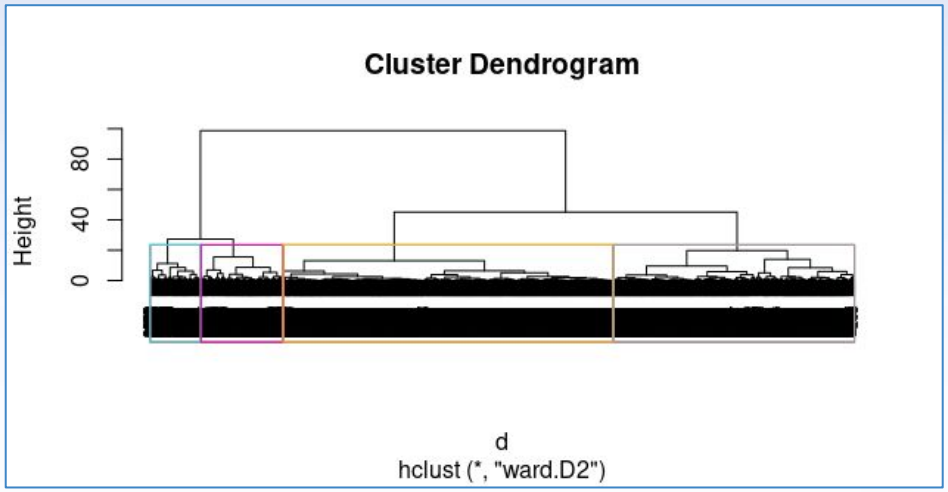


K-Means Clustering



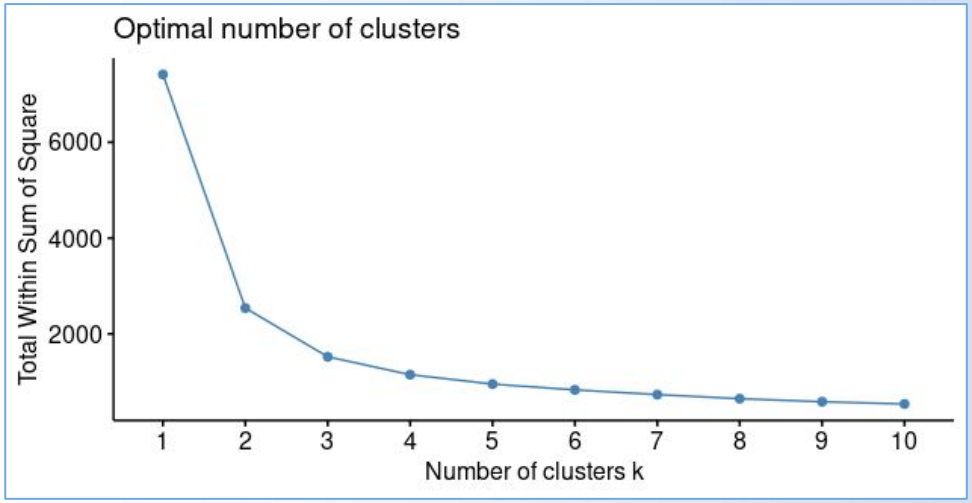
By using Elbow method which is used to determine optimal number of clusters, we concluded that in case of K-means, the optimal number of clusters for the ecommerce data is **3**

Hierarchical Clustering



Agglomerative coefficient, which measures the amount of clustering structure found (values closer to 1 suggest strong clustering structure) can be used to identify stronger clustering structures. The Ward's method is identified as the strongest clustering structure of the four methods assessed with agglomerative coefficient **0.9997**

Similar to how we determined optimal clusters with k-means clustering, we executed approaches for hierarchical clustering. We concluded that the optimal number of clusters for the ecommerce data is **3**.Therefore, there are **700** customers who are highly valued when identified using Hierarchical clustering algorithm.



Timeline

Review 0	• Identifying Business Case • Requirements & Specifications
Review 1	• Data Cleaning and Wrangling • Exploratory Data Analysis
Review 2	• Segmentation using Clustering Algorithms(K-Means, Hierarchical) • Tuning
Review 3	• Visualisation and Interpretation of results • Report of the Project

References

[1] Blanchard, Tommy. Bhatnagar, Pranshu. Behera,Trash. (2019). Marketing Analytics Scientific Data: Achieve your marketing objectives with Python's data analytics capabilities. S.l: Packt printing is limited

[2] Griva, A., Bardaki, C., Pramatari, K.,Papakiriakopoulos, D. (2018). Sales business analysis: Customer categories use market basket data. Systems Expert Systems, 100, 1-16.

[3] Hong, T., Kim, E. (2011). It separates consumers from online stores based on factors that affect the customer's intention to purchase. Expert System Applications, 39 (2), 2127-2131.

[4] Hwang, Y. H. (2019). Hands-on Advertising Science Data: Develop your machine learning marketing strategies... using python and r. S.l:Packt printing is limited

[5] Puwanenthiren Premkanth, -Market Classification and Its Impact on Customer Satisfaction and Special Reference to the Commercial Bank of Ceylon PLC.‖ Global Journal of Management and Business Publisher Research: Global Magazenals Inc. (USA). 2012. Print ISSN: 0975-5853. Volume 12 Issue 1.

[6] Puwanenthiren Premkanth,-Market Classification and Its Impact on Customer Satisfaction and Special Reference to the Commercial Bank of Ceylon PLC.‖ Global Journal of Management and Business Publisher Research: Global Magazenals Inc. (USA). 2012. Print ISSN: 0975-5853. Volume 12 Issue 1.

[7] By Jerry W Thomas. 2007. Accessed at:www.decisionanalyst.com on July 12, 2015.

[8] Jianfu, L., Jianshuang L., Huaiqing H. (2011). A Simple and Accurate Approach to Hierarchical Clustering. Journal of Computational Information Systems, 7(7), 2577--2584.

Thank you