

# *Customer Segmentation for Starbucks: Clustering Analysis to Increase Sales Among Unloyal Customers*

Jannah Cleine Glodo  
Trixia Nicole Libunao  
COM222-ML





## Introduction

Starbucks founded in 1971 in Seattle  
leads the market with a strong global presence  
(30,000+ location)

### Key Success Factors for Coffee Shops:

- Product quality and variety
- Cultural influences on consumer preferences.
- Customer service and personalized experience



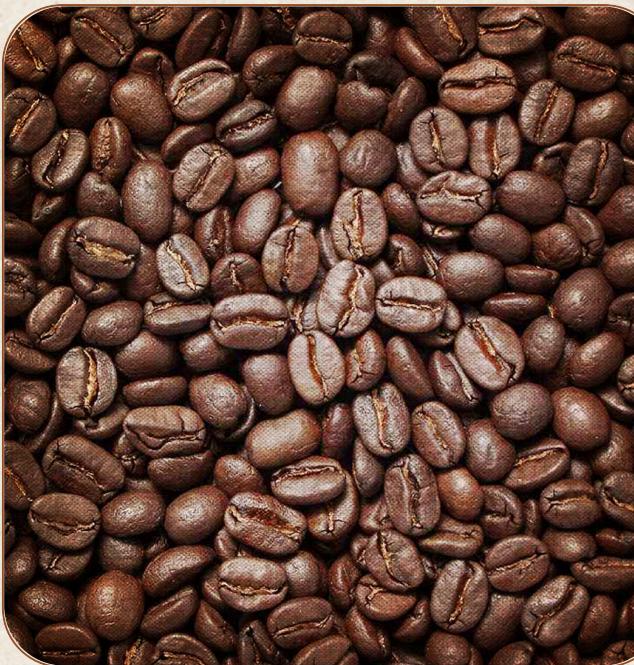
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# Research Focus & Objectives



- Use clustering techniques to segment Starbucks customers.
- Identify key factors influencing loyalty and disloyalty among consumers.
- Help Starbucks create targeted marketing strategies.
- Improve customer satisfaction and boost sales.

# Methodology

## DATA PREPROCESSING

Handling Missing Values

Feature Encoding

Feature Selection

Feature Scaling



# Model Selection



**K-Means Algorithm**  
The Elbow Method was used to determine the optimal number of clusters ( $n\_clusters=5$ ).



**Hierarchical Clustering  
(Agglomerative)**



**Gaussian Mixture Model (GMM)**

# Evaluation Metrics



## Silhouette Score

Measures how well-separated clusters are. A higher score indicates better-defined clusters.

## Davies-Bouldin Score

Evaluates the compactness and separation of clusters. Lower values indicate better clustering.

## Calinski-Harabasz Score

Measures the variance between and within clusters. Higher values indicate more distinct clusters.

# Comparative Analysis of Clustering Methods

Clustering Method	Silhouette Score	Davies-Bouldin Score	Calinski-Harabasz Score
K-Means	0.249257	1.189311	48.943358
Hierarchical	0.215728	1.444401	42.517138
GMM	0.171879	1.168075	40.875498



# RESULTS

## Key Findings:

- The clustering models successfully grouped Starbucks customers based on spending habits and loyalty.
- The findings support the hypothesis that Starbucks can target specific customer segments with personalized marketing strategies.
- The results validate previous assumptions that customer behavior is highly dependent on pricing, promotions, and brand loyalty.





# Conclusion



- Effective Customer Segmentation: Successfully grouped Starbucks customers into distinct segments based on spending habits, loyalty, and visit motivations.
- K-Means as the Best Model: Outperformed Hierarchical Clustering and GMM in defining well-separated customer clusters, validated by the highest Silhouette Score.
- Key Customer Groups Identified:
  - High-Spending Loyal Customers
  - Budget-Conscious Consumers
  - Occasional Consumer
  - Ambiance-Oriented Visitors
  - Unloyal or Irregular Consumers
- Critical Retention Factors: Customer loyalty is influenced by pricing strategies, promotions, product quality, and overall café experience.



# Demonstration

Thank you!

