Mohammad Idrees Bhat

Tech Skills Trainer | AI/ML Consultant

# Target Customer Compass

## Segmentation for Retail Businesses

## PROJECT DESCRIPTION

Perform clustering analysis on customer data from the "Mall Customers" dataset from Kaggle to identify segments.

Using unsupervised learning techniques, students will explore customer behaviors, uncover hidden patterns, and draw insights that can support targeted marketing strategies for different customer segments.

## PROJECT DELIVERABLES

1. Model Code
2. Evaluation Metric
3. Jupyter Notebook - Well documented ipynb that includes:
   - Data exploration and preprocessing steps
   - Model training and evaluation results
   - Conclusions and future improvement suggestions

## FURTHER INSTRUCTIONS (Optional Guidance)

1. **Import Libraries:** Load necessary libraries like `pandas`, `numpy`, `matplotlib`, and `seaborn` for data manipulation and visualization.
2. **Load the Dataset:** Import the *Mall Customers* dataset from Kaggle into your working environment.
3. **Explore Data:** View the first few rows of data and check basic statistics to understand the structure and features.

4. **Check for Missing Values:** Ensure data quality by identifying any missing values or inconsistencies.
5. **Data Cleaning (if necessary):** Handle any missing or erroneous values to prepare data for analysis.
6. **Data Visualization:** Plot feature distributions and relationships between features to understand customer behaviors.
7. **Feature Selection:** Select relevant features for clustering, focusing on customer demographics and shopping-related features.
8. **Standardize Data:** Standardize the selected features to bring them to a common scale, which is important for clustering.
9. **Determine Optimal Number of Clusters:** Use the Elbow Method or Silhouette Score to decide on the ideal number of clusters.
10. **Apply K-means Clustering:** Perform K-means clustering using the optimal number of clusters and interpret the cluster centers.
11. **Assign Cluster Labels:** Label each customer with their assigned cluster to create customer segments.
12. **Analyze Clusters:** Interpret each cluster to understand the distinct characteristics of each customer segment.
13. **Visualize Clusters:** Use scatter plots or pair plots to visualize clusters and highlight differences between segments.
14. **Generate Insights:** Summarize key insights about customer behavior in each segment to guide targeted marketing.
15. **Present Results:** Create a final report or presentation detailing findings, visualizations, and marketing recommendations based on clusters.

_____ BEST OF LUCK ... :)

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THANK YOU!

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