Customer Segmentation using K-Means

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Objective

To analyze customer behavior and group similar customers using K-Means clustering algorithm for targeted marketing.

Dataset Details

- Total Records: 200 customers
- Features:
  - Annual Income (k$)
  - Spending Score (1-100)

Process Followed

1. Data Loading from public CSV link
2. Preprocessing: Selected relevant features and applied StandardScaler
3. Optimal Clusters:
   - Elbow Method suggested k=5
   - Silhouette Score supported same
4. Model: KMeans(n_clusters=5, random_state=42)
5. Output:
   - Visualized clusters using scatterplot
   - Saved clustered_customers.csv for interpretation

Results

- 5 distinct customer segments formed.
- Visual clusters show separation based on spending habits and income.
- Business can now design personalized offers per group.

Conclusion

K-Means helped to identify patterns in customer behavior. These insights are valuable for customer retention, targeted advertising, and improving overall experience.