Practice Quiz: Clustering
Practice Assignment • 10 min

Your grade: 100%

Your latest: **100%** • Your highest: **100%** • To pass you need at least 60%. We keep your highest score.

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1. Which clustering method uses a top-down approach? 1 / 1 point

- ○ Density-based clustering
- ○ Partition-based clustering
- ○ Agglomerative clustering
- ◉ Divisive clustering

Correct
Divisive clustering follows a top-down approach, beginning with all data points in one cluster and splitting them into smaller clusters.

2. What is the primary objective of the k-means clustering algorithm? 1 / 1 point

- ◉ Minimize within-cluster variance
- ○ Identify outliers
- ○ Maximize within-cluster variance
- ○ Create non-convex clusters

Correct
The main objective of k-means is to minimize the within-cluster variance for all clusters simultaneously.

3. Which of the following scenarios is k-means best suited for? 1 / 1 point

- ◉ Segmenting customers based on purchasing behavior
- ○ Forecasting stock prices
- ○ Classifying emails as spam or not spam
- ○ Detecting anomalies in network traffic

Correct
K-means can effectively segment customers into groups with similar purchasing behaviors.

4. Which of the following scenarios is Density-Based Spatial Clustering of Applications with Noise (DBSCAN) best suited for? 1 / 1 point

- ○ Segmenting customers based on their age
- ○ Classifying text documents by topic
- ○ Predicting the stock market trends
- ◉ Identifying geographic areas with high crime rates

Correct
DBSCAN is effective for identifying clusters of geographic data, especially in finding areas of high density, such as crime hotspots.

5. How does Hierarchical Density-Based Spatial Clustering of Applications with Noise (HDBSCAN) improve upon the DBSCAN algorithm? 1 / 1 point

- (●) HDBSCAN can cluster data with varying densities.
- ( ) HDBSCAN only identifies spherical clusters.
- ( ) HDBSCAN requires manual tuning of the number of clusters.
- ( ) HDBSCAN does not use density-based clustering.

Correct
HDBSCAN can handle clusters of different densities, improving flexibility compared to DBSCAN.