Started on	Sunday, 7 April 2024, 12:10 AM
State	Finished
Completed on	Sunday, 7 April 2024, 12:38 AM
Time taken	27 mins 18 secs
Grade	8.00 out of 10.00 (80%)

Question 1

Complete

Mark 1.00 out of 1.00

Suppose we would like to perform clustering on the geometrical locations of houses. To produce clusters of many different sizes and shapes, which of the following methods is the most appropriate?

a. Decision Trees

b. K-means clustering

c. Model-based clustering

d. Density-based clustering

The correct answer is: Density-based clustering

Question 2

Complete

Mark 1.00 out of 1.00

Given the following data points and their respective distances to potential medoids, which point would be selected as the initial medoid in K-medoids clustering for K=2?

Data Points: A, B, C, D Distances to Potential Medoids:

- A to B: 5
- A to C: 8
- A to D: 6
- B to C: 4
- B to D: 7
- C to D: 3

a. C

b. D

c. A

d. B

The correct answer is: C

Question 3

Complete

Mark 0.00 out of 1.00

In a clustering algorithm, you have used the k-means algorithm to cluster data into 4 clusters. if you calculate the silhouette score for your clustering results,and it is 0.65,what does this score suggest about the quality of clusters?

a. Poor clustering

b. Fair clustering

c. Excellent clustering

d. Good clustering

The correct answer is:
Excellent clustering

Question 4

Complete

Mark 0.00 out of 1.00

In DBSCAN clustering, if there exists a chain of objects p1, p2, p3, ..., pn, with p1 as q and pn as p, and each consecutive object pi+1 is directly density-reachable from pi, how many of these objects in the chain are core objects when the value of MinPts is configured as 4?

- a. 3 core objects
- b. 1 core object
- c. 2 core objects
- d. 4 core objects

The correct answer is: 2 core objects

Question 5

Complete

Mark 1.00 out of 1.00

Which statement is false for defining the characters of DBSCAN

- a. Find mutually exclusive clusters of spherical shape
- b. Clusters are dense regions of objects in space that are separated by low-density regions
- c. Cluster density: Each point must have a minimum number of points within its "neighborhood."
- d. May filter out outliers

The correct answer is: Find mutually exclusive clusters of spherical shape

Question 6

Complete

Mark 1.00 out of 1.00

A dataset with n points and m class labels can have a minimum (x) and maximum number👆 of clusters

- a. x = m, y = n
- b. x = 0, y = n
- c. x = n, y = m
- d. x = 1, y = n

The correct answer is: x = 1, y = n

Question 7

Complete

Mark 1.00 out of 1.00

When allocating ATMs in a region with constraints such as obstacle objects and user-specified requirements, how can the k-means clustering algorithm be modified to achieve quality clustering under both constraints?

a. Disregard user-specified constraints to maintain the simplicity of the k-means algorithm.

b. Incorporate obstacle objects into the distance metric used by k-means for cluster assignment.

c. Use a larger value of k to ensure more ATMs are allocated, thus satisfying constraints.

d. Apply the k-means algorithm as-is, as it naturally handles both obstacle objects and user-specified constraints.

The correct answer is: Incorporate obstacle objects into the distance metric used by k-means for cluster assignment.

Question 8

Complete

Mark 1.00 out of 1.00

Which clustering algorithm is capable of handling noise and outliers effectively?

a. DBSCAN

b. Mean-Shift

c. K-Medoids

d. K-Means

The correct answer is: DBSCAN

Question 9

Complete

Mark 1.00 out of 1.00

A good clustering method should have

a. high intra-class similarity and low inter-class similarity

b. low intra-class similarity and low inter-class similarity

c. high intra-class similarity and high inter-class similarity

d. low intra-class similarity and high inter-class similarity

The correct answer is:
high intra-class similarity and low inter-class similarity

Question 10

Complete

Mark 1.00 out of 1.00

What is the primary assumption made by the K-means clustering algorithm?

a. Clusters have similar sizes

b. Clusters have similar densities

c. Clusters are linearly separable

d. Clusters have a spherical shape

The correct answer is:
Clusters have a spherical shape