Thank you. Your test submitted.

You have cleared this assessment.

Obtained Percentage	Obtained Marks
80 %	16 / 20

Best Attempt Score:80 % on 12-03-2025

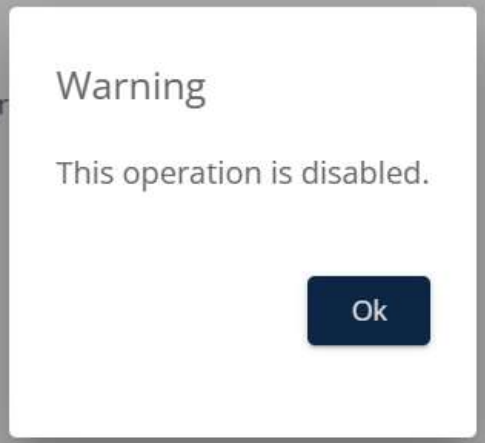
Assume, there are 7 observations and you want to find 3 clusters in it using k-Means clustering algorithm. After first iteration, clusters, C1, C2, C3 have following observations:

C1: {(3,3), (4,4), (5,5)}

C2: {(4,0), (0,4)}

C3: {(5,5), (9,9)}

What will be the cluster centroids if you want to pr



- (●) C1: (4,4), C2: (2,2), C3: (7,7)
- ( ) C1: (6,6), C2: (2,2), C3: (7,7)
- ( ) C1: (2,2), C2: (0,0), C3: (5,5)
- ( ) None of the above

Which of the following method of analysis does not classify variables as dependent and independent?

- ○ Regression analysis
- ○ Classification analysis
- ◉ Cluster analysis

Warning

This operation is disabled.

Which of the following statement(s) is(are) correct, if the Dunn index of clusters in a dataset is high?

1. The clusters are compact
2. The maximum separation between the clusters is high
3. Dunn index helps in finding optimal number of clusters in a dataset

- ○ 1 only
- ○ Both 1 and 2
- ◉ 1, 2, and 3
- ○ None of the above

Warning

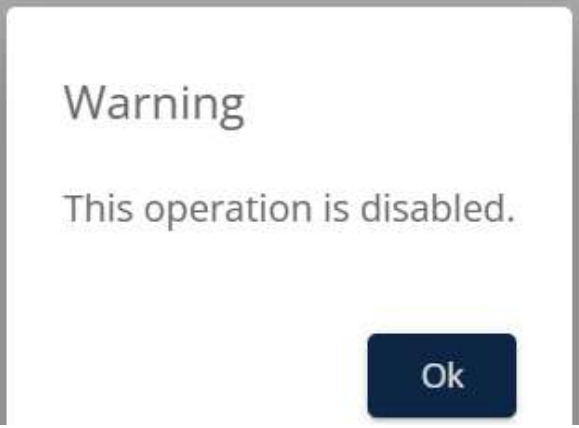
This operation is disabled.

Ok

Let V1 and V2 be two variables in a dataset. Create 3 clusters using k-medoid clustering algorithm. Which of the following statements are true?

1. If correlation of V1 and V2 is 1, the cluster medoids always lie in a straight line
2. If correlation of V1 and V2 is 0, the cluster medoids always lie in a straight line

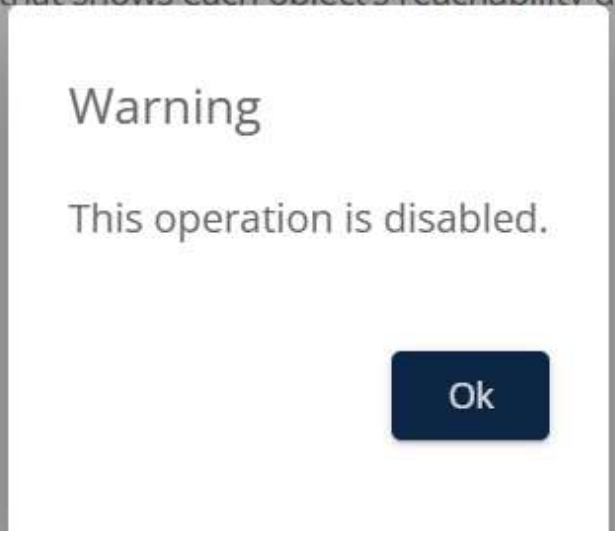
- (●) 1 only
- ( ) 2 only
- ( ) Both 1 and 2
- ( ) None of the above



Which of the following statement(s) is (are) true about OPTICS clustering?

1. The OPTICS algorithm is an extension of DBSCAN algorithm
2. It takes care of varying densities in the dataset
3. The reachability plot in OPTICS is a bar chart that shows each object's reachability distance in the order the object was processed.
4. It is sensitive to outliers

- ○ Only 1
- ○ 1 and 2
- ○ 1, 2, and 3
- ◉ 1 and 3



Which of the following linkage methods use information of all pairs of distances and not on the minimum or maximum distances.

- ○ Single linkage
- ○ Complete linkage
- ◉ Average linkage
- ○ Centroid linkage

Warning

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Both Hopkins statistic and GAP statistic are used to find the optimal value of k in k-means clustering algorithm.

- ○ True
- ◉ False

Warning

Is hierarchical clustering slower than non-hierarchical clustering?

- (●) True
- ( ) False
- ( ) Depends on data
- ( ) Cannot say

Warning

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Which of the following clustering algorithms is characterized by the development of a tree like structure?

- [ ] Non-hierarchical clustering
- [ ] DBSCAN
- [x] Agglomerative clustering
- [x] Divisive clustering

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Which of the following statements about the K-means algorithm are correct?

- [x] The K-means algorithm is sensitive to outlier
- [ ] For different initializations, the K-means algo stering results.
- [x] The centroids in the K-means algorithm may
- [ ] The K-means algorithm can detect non-conve

Warning

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The k-means algorithm...

- [ ] always converges to a clustering that minimi… …tative distance
- [x] can converge to different final clustering, dep… …atives
- [x] is widely used in practice
- [x] is sensitive to outliers

Warning

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K-means is an iterative algorithm. Which of the following steps repeat in the inner loop?

1. Using the elbow method to choose the optimal value of k
2. The cluster assignment step, in which each data point is assigned to a cluster
3. Updation of cluster centroids

- ○ 1 and 2
- ◉ 2 and 3
- ○ 1 and 3
- ○ None of the above

Warning

This operation is disabled.

Ok

The goal of clustering a set of objects is to

- ○ Choose the best object in the dataset
- ○ To find the nearest neighbours of each of th
- ◉ Divide the objects into meaningful groups
- ○ To find two most similar objects

Warning

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In which of the following cases will K-means clustering fail to give good results?

1) Data points with outliers

2) Data points with different densities

3) Data points with nonconvex shapes

- ○ 1 and 2
- ○ 2 and 3
- ○ 1 and 3
- ◉ 1, 2, and 3

Warning

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Ok

What are the challenges involved in the clustering technique?

- ○ High dimensionality of data
- ○ Scalability
- ○ Noisy data
- ◉ All of the above

Warning

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Which of the following is/are not true about DBSCAN clustering algorithm:

1. For data points to be in a cluster, they must be in a distance threshold to a core point
2. It has strong assumptions for the distribution of data points in dataspace
3. It has substantially high time complexity of order O(n3)
4. It does not require prior knowledge of the no.
5. It is robust to outliers

- ○ Both 1 and 2 only
- ○ Both 3 and 4 only
- ◉ Both 2 and 3 only
- ○ 1,3 and 5
- ○ 1,2,3 and 5

Warning

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Ok

When number of clusters increases in a dataset, the total within cluster sum of squares (WCSS) also increases.

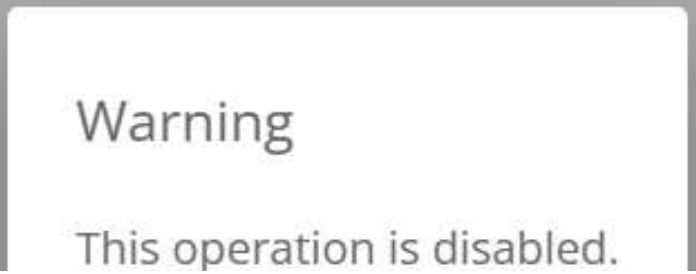
- ○ True
- ◉ False

Warning

State True/False.

To reduce the number of variables, a large set of variables can often be replaced by the set of cluster components.

- (●) True
- ( ) False



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C3: {(5,5), (9,9)}

What is the Manhattan distance of (9, 9) from clust

- (●) 10
- ( ) 5*sqrt(2)
- ( ) 14
- ( ) None of the above

The most important part of ... is selecting the attributes on which clustering is done?

- (●) data preprocessing for clustering
- ( ) formulating the clustering problem
- ( ) deciding the clustering procedure
- ( ) analysing the cluster

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