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## Quiz 1 - K-Means, DBSCAN and Hierarchical clustering

Type	:	Graded Quiz
Attempts	:	1/1
Questions	:	15
Time	:	25m
Due Date	:	Nov 10, 11:59 PM IST
Your Marks	:	15/15

**Instructions**

## Attempt History

**Attempt #1**

Nov 02, 10:27 AM

Marks: 15

**Q No: 1****Correct Answer**

Marks: 1/1

Which of the following equation can be used to compute Euclidean distance?

None of the given options Square root of  $((x_2 - x_1)^2 + (y_2 - y_1)^2)$ 

You Selected

  $(x_2 - x_1)^2 + (y_2 - y_1)^2$   $(x_2 - x_1) + (y_2 - y_1)$ **Q No: 2**

Correct Answer

Marks: 1/1

The goal of clustering is to-

 All of the given options are correct Classify the data point into different classes Predict the output values of input data points Divide the data points into groups

You Selected

**Q No: 3**

Correct Answer

Marks: 1/1

Which of the following clustering algorithm is most sensitive to outliers?

 K-Means

You Selected

 DBSCAN K- Modes KNN

**Q No: 4****Correct Answer**

Marks: 1/1

The initial metrics distance between B and A is 4, and the distance between C and A is 6. Assuming the cluster BC is formed, what is the distance between the cluster (BC) and A using complete and single link method

 4,5 4,6 5,6 6,4**You Selected****Q No: 5****Correct Answer**

Marks: 1/1

Which of the following statement on Dendrogram is NOT TRUE:

- (i) The key to interpreting a Dendrogram is to focus on the height at which any two objects are joined together
- (ii) A Dendrogram is a diagram that shows the hierarchical relationship between objects.
- (iii) The width of the Dendrogram is the cluster distance measure
- (iv) Dendrogram can be plot for Hierarchical clustering

 All are true (ii) (iii)**You Selected** (i)

**Q No: 6****Correct Answer**

Marks: 1/1

Which of the following clustering algorithm follows a top to bottom approach?

 None of the given options Divisive**You Selected** Agglomerative K-means**Q No: 7****Correct Answer**

Marks: 1/1

On which data type, we cannot perform cluster analysis?

 Time series data Text data Multimedia data All of the given options are correct**You Selected****Q No: 8****Correct Answer**

Marks: 1/1

Elbow graph is drawn between which of the following two parameters?

- Number of clusters (K) vs Silhouette score
- Number of clusters (K) Vs Sum of square error within clusterYou Selected
- Number of clusters (K) Vs Manhattan distance
- . Number of clusters (K) vs sum of square of distance between the point from one cluster to other

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**Q No: 9**Correct Answer

Marks: 1/1

What is the full form of DBSCAN?

- Distance-Based Segmented Clustering of Applications with Noise
- Density-Based Spatial Clustering of Applications with NoiseYou Selected
- Density-Based Segmented Clustering of Applications with Noise
- Distance-Based Spatial Clustering of Applications with Noise

---

**Q No: 10**Correct Answer

Marks: 1/1

Which of the following characteristics are used in determining the optimal set of clusters?

- Compact clusters
- Small clusters
- Both compact and distinct clustersYou Selected
- Distinct clusters

**Q No: 11****Correct Answer**

Marks: 1/1

Which of the following linkage methods provides a chain like structure while clustering groups?

 Ward Linkage Complete Linkage Average Linkage Single Linkage**You Selected****Q No: 12****Correct Answer**

Marks: 1/1

Which one of the following techniques does not require the variables to be separated as dependent or independent?

 Classification Clustering**You Selected** Boosting Regression**Q No: 13****Correct Answer**

Marks: 1/1

What is the minimum no. of variables/ features required to perform clustering?

1

You Selected

 0 3 2**Q No: 14**

Correct Answer

Marks: 1/1

For which algorithm/s, there is no need to pre-specify the number of clusters?

 Hierarchical clustering K-Means Both DBSCAN and Hierarchical clustering

You Selected

 DBSCAN**Q No: 15**

Correct Answer

Marks: 1/1

Assume, you want to cluster 7 observations into 3 clusters using K-Means clustering algorithm.

After first iteration clusters, C1, C2, C3 has following observations:

C1: {(2,2), (4,4), (6,6)}

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

C3: {(6,6), (10,10)}

What will be the cluster centroids if you want to proceed for second iteration?

None of these[◀ Previous](#)[Next ▶](#)

C1: (5,6), C2: (4,4), C3: (9,9)

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**Q No: 1**

Correct Answer

Marks: 1/1

Which of the following clustering algorithm follows a top to bottom approach?

None of the given options

K-means

***Divisive → You Selected***

Agglomerative

**Q No: 2**

Correct Answer

Marks: 1/1

The goal of clustering is to-

***Divide the data points into groups → You Selected***

All of the given options are correct

Classify the data point into different classes

Predict the output values of input data points

**Q No: 3**

Correct Answer

Marks: 1/1

The initial metrics distance between B and A is 4, and the distance between C and A is 6. Assuming the cluster BC is formed, what is the distance between the cluster (BC) and A using complete and single link method

5,6

4,5

***6,4 → You Selected***

4,6

**Q No: 4**

Correct Answer

Marks: 1/1

Why are linkage methods used?

To measure intra-cluster distance

To link all the clusters

To link the similar clusters

***To measure inter-cluster distance → You Selected***

**Q No: 5**

Correct Answer

Marks: 1/1

Which of the following clustering algorithm is most sensitive to outliers?

K- Modes

DBSCAN

***K-Means → You Selected***

KNN

**Q No: 6**

Correct Answer

Marks: 1/1

Which of the following statement on Dendrogram is NOT TRUE:

(i) The key to interpreting a Dendrogram is to focus on the height at which any two objects are joined together

(ii) A Dendrogram is a diagram that shows the hierarchical relationship between objects.

(iii) The width of the Dendrogram is the cluster distance measure

(iv) Dendrogram can be plot for Hierarchical clustering

(i)

***(iii) → You Selected***

All are true

(ii)

**Q No: 7**

Correct Answer

Marks: 1/1

Elbow graph is drawn between which of the following two parameters?

Number of clusters (K) Vs Manhattan distance

. Number of clusters (K) vs sum of square of distance between the point from one cluster to other

***Number of clusters (K) Vs Sum of square error within cluster → You Selected***

Number of clusters (K) vs Silhouette score

**Q No: 8**

Correct Answer

Marks: 1/1

Which of the following linkage methods provides a chain like structure while clustering groups?

Complete Linkage

***Single Linkage → You Selected***

Average Linkage

Ward Linkage

**Q No: 9**

Correct Answer

Marks: 1/1

Which of the following uses merging approach?

Density based clustering

Partitioned clustering

***Hierarchical clustering → You Selected***

Distance based clustering

**Q No: 10**

Correct Answer

Marks: 1/1

What is the first step in agglomerative hierarchical clustering

Form k clusters

***a. Assume each data point is a cluster → You Selected***

Reduce the variation within the clusters

None of the above

**Q No: 11**

Correct Answer

Marks: 1/1

What is the full form of DBSCAN?

Distance-Based Segmented Clustering of Applications with Noise

***Density-Based Spatial Clustering of Applications with Noise → You Selected***

Distance-Based Spatial Clustering of Applications with Noise

Density-Based Segmented Clustering of Applications with Noise

**Q No: 12**

Correct Answer

Marks: 1/1

On which data type, we cannot perform cluster analysis?

Multimedia data

Time series data

Text data

***All of the given options are correct → You Selected***

**Q No: 13**

Correct Answer

Marks: 1/1

The average intra-cluster distance is given as 4.2 and the average inter-cluster distance is given as 5.7. Calculate the silhouette coefficient.

0.1248

0.4524

***0.2632 → You Selected***

0.5623

**Q No: 14**

Correct Answer

Marks: 1/1

Which of the following characteristics are used in determining the optimal set of clusters?

***Both compact and distinct clusters → You Selected***

Compact clusters

Distinct clusters

Small clusters

**Q No: 15**

Correct Answer

Marks: 1/1

What is the ideal stopping criteria for the K means algorithm?

***Centroids obtained in the consecutive iterations must remain same → You Selected***

Centroids obtained in the consecutive iteration must be less separated in position

Centroids obtained in the consecutive iteration must be highly separated in position

At least 50 Iteration

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## Quiz 2 - Dimensionality reduction

Type	:	Graded Quiz
Attempts	:	1/1
Questions	:	10
Time	:	15m
Due Date	:	Nov 17, 11:59 PM IST
Your Marks	:	10/10

### Instructions



## Attempt History

### Attempt #1

Nov 03, 1:20 PM

Marks: 10



Q No: 1

Correct Answer

Marks: 1/1

PCA can be used for projecting and visualizing data in lower dimensions.

True

You Selected

 False No answer text provided. No answer text provided.**Q No: 2**

Correct Answer

Marks: 1/1

Which of the following is a step of Data Pre Processing, which is applied to independent variables, or features of data.

 Standardization

You Selected

 Gradient descent Error finding None of these**Q No: 3**

Correct Answer

Marks: 1/1

Why you have to drop unimportant features?

 Using the most important features will give you better efficiency predicting your target

You Selected

 Standardize the data To trains the model faster To Find the correct clusters

**Q No: 4****Correct Answer**

Marks: 1/1

PCA takes care of multi co-linearity in data.

 True**You Selected** False No answer text provided. No answer text provided.**Q No: 5****Correct Answer**

Marks: 1/1

\_\_\_ is described as a dimensionality reduction technique.

 Both PCA and LDA**You Selected** PCA LDA LDC**Q No: 6****Correct Answer**

Marks: 1/1

Which of the following are the different criterias to select the best principal components?

Both Scree Plot and Kaiser Criterion

You Selected

 Scree Plot Kaiser Criterion None of the given options**Q No: 7**

Correct Answer

Marks: 1/1

Which of the following statements are correct

(i) LDA specifically tries to model the difference between the classes of the data.

(ii) On the other hand, the PCA does not take any class difference into account.

 Both (i) and (ii) are correct

You Selected

 Only (i) is correct Only (ii) is correct Both (i) and (ii) are incorrect**Q No: 8**

Correct Answer

Marks: 1/1

The elbow point in the scree plot corresponds to the optimal number of components

True

You Selected

 False No answer text provided. No answer text provided.**Q No: 9**

Correct Answer

Marks: 1/1

A characteristic equation is defined as:

  $|A - \lambda I| = 0$ 

You Selected

  $|A| = \lambda I$   $|A - I| = \lambda$  None of the given options**Comments:**[+ Add comments](#) [Previous](#)[Next](#)

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## Quiz 2 - Dimensionality reduction

Type	:	Graded Quiz
Attempts	:	1/1
Questions	:	10
Time	:	15m
Due Date	:	Nov 17, 11:59 PM IST
Your Marks	:	10/10

### Instructions

## Attempt History

### Attempt #1

Nov 05, 2:13 PM

Marks: 10

**Q No: 1****Correct Answer**

Marks: 1/1

In PCA, the number of components is \_\_\_\_\_ to the number of independent variables.

 Less than or equal**You Selected** Greater than Less than Greater than or equal to**Q No: 2****Correct Answer**

Marks: 1/1

Which of the following statements are correct

- (i) LDA specifically tries to model the difference between the classes of the data.
- (ii) On the other hand, the PCA does not take any class difference into account.

Both (i) and (ii) are correct

You Selected

Only (i) is correct

Only (ii) is correct

Both (i) and (ii) are incorrect

**Q No: 3**

**Correct Answer**

Marks: 1/1

\_\_\_\_\_ is known to have a practical use as a binary as well as multiclass classifier.

LDA

You Selected

PCA

Both PCA and LDA

None

**Q No: 4**

**Correct Answer**

Marks: 1/1

The elbow point in the scree plot corresponds to the optimal number of components

True

You Selected

 False No answer text provided. No answer text provided.**Q No: 5**

Correct Answer

Marks: 1/1

\_\_\_\_\_ is described as a dimensionality reduction technique.

 Both PCA and LDA

You Selected

 PCA LDA LDC**Q No: 6**

Correct Answer

Marks: 1/1

Which of the following statement is TRUE about Linear Discriminative Analysis ?

 LDA objective is to maximize the distance between the target classes and minimize the distance within classes

You Selected

 minimize both distance between class and distance within class maximize both distance between class and distance within class LDA objective is to minimize the distance between the target classes and maximize the distance within classes**Q No: 7**

Correct Answer

Marks: 1/1

Which of the following are the different criterias to select the best principal components?

Both Scree Plot and Kaiser Criterion

You Selected

Scree Plot

Kaiser Criterion

None of the given options

**Q No: 8**

Correct Answer

Marks: 1/1

Which of the following statements are TRUE about PCA?

1. PCA is unsupervised approach
2. PCA select only the significant features from all the features
3. PCA helps in removing redundant feature dimensions and select the unique features
4. PCA can be used for prediction

A and C

You Selected

A and B

A, B and C

B and C

**Q No: 9**

Correct Answer

Marks: 1/1

When to use PCA?

You want to find latent features and reduce dimensionality

You Selected

When my data is small and with a few features

When I have a overfit case

Everytime before uses a Machine Learning algorithm

**Q No: 10**

Correct Answer

Marks: 1/1

Principal components are always \_\_\_\_ to each other.

Orthogonal

You Selected

Parallel

Horizontal

None of the above

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## Quiz 3 - Recommendation systems , Association rule mining

Type	:	Graded Quiz
Attempts	:	1/1
Questions	:	15
Time	:	25m
Due Date	:	Nov 17, 11:59 PM IST
Your Marks	:	15/15

### Instructions

## Attempt History

### Attempt #1

Nov 05, 3:55 PM

Marks: 15

**Q No: 1****Correct Answer**

Marks: 1/1

Which of the following cannot be considered as an example of implicit rating

 Rating given for an item

You Selected

 Time spent on a screen Observation of user behavior by his watch history Number of clicks on an item**Q No: 2****Correct Answer**

Marks: 1/1

For the user-item table below, find the Euclidean distance between user 1 and 2

	Item 1	Item 2	Item 3
Item	1	2	3
User 1	4	5	5
User 2	2	1	1
User 3	5	5	4

6

You Selected

0

4

1.456

**Q No: 3**

Correct Answer

Marks: 1/1

Which of the following Is the interestingness measure of association rules?

Lift

You Selected

Accuracy

Compactness

Recall

**Q No: 4**

Correct Answer

Marks: 1/1

What does Apriori algorithm do?

It mines all the frequent patterns through pruning rules with lesser support

You Selected

It mines all the frequent patterns through pruning rules with higher support

It mines all the infrequent patterns through pruning rules with lesser support

None of the given options

**Q No: 5**

Correct Answer

Marks: 1/1

Which of the following looks for similarity between user ratings to make predictions?

User based Collaborative filtering

You Selected

Content based recommendation system

Popularity based recommendation systems

Item based Collaborative filtering

**Q No: 6**

Correct Answer

Marks: 1/1

Three major component of Apriori algorithm are:

Support , Confidence and Lift

You Selected

Support, Probability, Odd

Likelihood, Probability, Lift

Support, Likelihood, Kappa

**Q No: 7**

Correct Answer

Marks: 1/1

An app store recommends a gaming app to a user because he recently installed a similar app. This falls into what kind of recommendation system?

Content based

You Selected

 Collaborative Popularity based Hybrid**Q No: 8**

Correct Answer

Marks: 1/1

An itemset X is .....in a data set S if there exists no proper super-itemsets Y such that Y has the same support count as X in S.

 Closed

You Selected

 Maximal Complete None**Q No: 9**

Correct Answer

Marks: 1/1

Calculate cosine similarity between the following vectors A and B

$$A = [1, 7, 8, 4, 0, 4, 2, 0.3]$$

$$B = [4, 8, 3, 9, 5, 0.4, 3, 1]$$

0.728

You Selected

 0.638 0.456 .25**Q No: 10**

Correct Answer

Marks: 1/1

Say the recommendation system uses cosine similarity.

Which of the following statements is NOT true ?

 Cosine similarity between same items are close to zero

You Selected

 Cosine similarity between two items/users ranges between 0 to 1 Cosine similarity between same items are close to one Cosine similarity is an normalized measure**Q No: 11**

Correct Answer

Marks: 1/1

Let's say in a shopping store a new customer comes and he wants to buy shirts which are trending this season. We recommend him the best-selling shirts without asking any details about his favourite colours or price range. Which recommender uses the same principle to recommend items?

 Popularity Based Recommendation System

You Selected

 Content based recommendation system Classification model Clustering model

**Q No: 12**

Correct Answer

Marks: 1/1

For the user-item table below, find the Euclidean distance between item 1 and 2

	Item 1	Item 2	Item 3
User 1	4	5	5
User 2	2	1	1
User 3	5	5	4

 1.414

You Selected

 2 5 .45**Q No: 13**

Correct Answer

Marks: 1/1

In SVD approach, the Right singular matrix contains the information of \_\_\_\_\_

 Item Features

You Selected

 User Features Singular values Eigen values

**Q No: 14**

Correct Answer

Marks: 1/1

Which of the following is true about content-based recommendation systems?

- recommendations are specific to this user, as the model did not use any information about other users

You Selected

- It will compare one user interest with other

- It needs the data of other users

- All of the given options are correct

**Q No: 15**

Correct Answer

Marks: 1/1

Consider the given itemset from the collection of purchases given in the table:

Itemset - {Shampoo, conditioner}

What is the confidence that a conditioner would be purchased given that the customer has bought a shampoo?

ID	Item
1	Toothpaste, brush, soap
2	Soap, detergent, shampoo
3	Shampoo, conditioner, soap
4	Brush, shampoo, conditioner
5	Toothpaste, brush

2/3

You Selected

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