Required Quiz 12.1: Week 12 Quiz

Due Dec 19 at 11:59pm   **Points** 20   **Questions** 20
Available Dec 6 at 12am - Dec 19 at 11:59pm   **Time Limit** 30 Minutes

Instructions

🎯 **Learning Outcome Addressed**

1. Apply probability in business.
2. Apply various statistical tools in the business scenario.

It is now time to assess your understanding of the concepts covered so far in this module.

Quiz Instructions

- The time limit for this quiz is 30 mins. Kindly complete and submit this quiz within this time.
- You have only one attempt to answer the quiz.
- All quiz attempts must be attempted by **Friday, December 19, 2025, by 11:59PM IST**.

Note: This is a graded quiz and counts towards programme completion.

This quiz was locked Dec 19 at 11:59pm.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	7 minutes	20 out of 20

Score for this quiz: **20** out of 20
Submitted Dec 14 at 11:38am
This attempt took 7 minutes.

Question 1	1 / 1 pts

What is the primary goal of using cluster analysis?

- ○ To evaluate classification models

Correct! ◉ To identify natural groupings of data points with similar characteristics

- ○ To assign predefined labels to data points

- ○ To create a hierarchy of data points

> That's correct

Question 2	1 / 1 pts

What is a major limitation of K-means when dealing with categorical

Sidebar navigation:
- Home
- Modules
- People
- Announcements
- Discussions
- Quizzes
- SEM 1: Financial Accounting
- SEM 1: Principles of Management
- SEM 1: Business Communication
- SEM 1: Business Statistics
- SEM 1: Managerial Economics
- Live Sessions

data?

○ It can only handle binary categorical data.

○ It can handle categorical data directly.

Correct! ⦿ It assumes Euclidean distance is the best metric for categorical data.

○ It requires categorical data to be normalized.

That's correct

Question 3   1 / 1 pts

What is a key consideration when clustering categorical data?

○ Ensuring the data follows a normal distribution

○ Treating categories as numeric values

Correct! ⦿

Using appropriate distance measures like Jaccard or Gower's distance

○ Using measures like Euclidean or Manhattan distance

That's correct

Question 4   1 / 1 pts

What type of data is suitable for clustering algorithms like K-means and hierarchical clustering?

○ Only text data

Correct! ⦿ Both numeric and categorical data

○ Only categorical data

○ Only numeric data

That's correct

Question 5   1 / 1 pts

What is the impact of outliers on clustering results?

○ They have no impact on clustering analysis

○ They simplify the distance calculations

Correct! ⦿ They lead to over-fitting and unreliable clusters

○ They improve cluster homogeneity

That's correct

Question 6

1 / 1 pts

What is one key benefit of identifying natural groupings within data?

- It creates hierarchical clusters automatically

Correct!
- ● It simplifies complex datasets by uncovering patterns or trends

- It eliminates the need for evaluation metrics

- It determines the most accurate prediction model

That's correct

Question 7

1 / 1 pts

Why is it important to assess the quality of clusters after performing clustering analysis?

- To assign labels to unclustered data points

- To optimize predictive models

- To reduce the size of the dataset

Correct!
- ● To ensure meaningful and interpretable results

That's correct

Question 8

1 / 1 pts

How does K-means handle the uncertainty in assigning data points to clusters?

- It assigns each data point to the cluster with the highest probability.

- It assigns each data point to the closest cluster based on Euclidean distance.

Correct!
- ● It does not account for uncertainty in cluster assignments.

- It uses a probabilistic approach to assign points to clusters.

That's correct

Question 9

1 / 1 pts

What is the primary objective of K-Means clustering?

- To represent clusters as probabilistic distributions

- To reduce dimensionality using eigenvalues

Correct!
- ● To minimize variance within clusters and maximize variance between

clusters

○ To build a tree-like structure of clusters

That's correct

Question 10

1 / 1 pts

How can cluster analysis help in customer segmentation?

○ By analyzing customer reviews only

Correct!

◉ By grouping customers based on purchasing behavior, demographics, and preferences

○ By assigning predefined labels to customer profiles

○ By predicting future purchases of individual customers

That's correct

Question 11

1 / 1 pts

Which clustering method builds a hierarchy of clusters without requiring the number of clusters to be specified in advance?

○ K-Means clustering

○ Spectral clustering

Correct!

◉ Hierarchical clustering

○ Centroid-based clustering

That's correct

Question 12

1 / 1 pts

How does cluster analysis differ from classification?

○ Both are identical in their objectives

Correct!

◉ Cluster analysis seeks to discover groups without prior knowledge of their existence

○ Classification uncovers groups without prior knowledge, while cluster analysis uses predefined groups

○ Cluster analysis uses labeled data, while classification does not

That's correct

Question 13

1 / 1 pts

Which of the following is NOT an assumption of the K-means clustering algorithm?

Correct!
- ◉ Data points can belong to multiple clusters.
- ○ The number of clusters (K) must be specified in advance.
- ○ All clusters have similar variance.
- ○ Clusters are spherical and evenly sized.

That's correct

Question 14

1 / 1 pts

What is the main goal of cluster analysis?

- ○ To classify observations into predefined groups
- ○ To analyze relationships between binary attributes
- ○ To predict group membership for new observations

Correct!
- ◉ To group observations into homogeneous clusters without prior knowledge of group existence

That's correct

Question 15

1 / 1 pts

Why is selecting the appropriate distance measure crucial in cluster analysis?

- ○ It eliminates the need for normalization
- ○ It allows binary data to be used in numeric clustering

Correct!
- ◉ It determines the accuracy of group assignments
- ○ It ensures the data follows a normal distribution

That's correct

Question 16

1 / 1 pts

What characterizes unsupervised machine learning methods?

- ○ They use labeled output to train the algorithm

Correct!
- ◉ They find hidden patterns in data without labeled output

○ They require input-output pairs for learning

○ They are used only for numeric datasets

That's correct

Question 17   1 / 1 pts

In churn analysis, how is cluster analysis typically used?

○ To predict the profitability of loyal customers

○ To monitor competitor performance

○ To develop new customer acquisition strategies

Correct! ○
To identify groups of customers at risk of leaving based on usage patterns

That's correct

Question 18   1 / 1 pts

Which of the following is NOT a common consideration when selecting a clustering algorithm?

○ Cluster shapes

Correct! ○ The frequency of hypothesis testing

○ Dataset size

○ Presence of noise

That's correct

Question 19   1 / 1 pts

What technique is commonly used for segmenting data, objects, or cases?

Correct! ○ Cluster analysis

○ Regression analysis

○ Discriminant analysis

○ Time series analysis

That's correct

Question 20   1 / 1 pts

What is the primary goal of K-means clustering?

○ To train on input-output pairs for accurate predictions

Correct!

⦿
To minimize intra-cluster variance and maximize inter-cluster distance

○ To classify data points into predefined categories

○
To maximize intra-cluster variance and minimize inter-cluster distance

That's correct

Quiz Score: **20** out of 20

‹ Previous   Next ›