



## Knowledge Check

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1

**What is the goal of hierarchical clustering?**

- A. To classify data into distinct groups
- B. To identify anomalies in data sets
- C. To reduce the dimensionality of input data
- D. To create a tree-shaped structure known as a dendrogram



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The correct answer is **D**

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**The goal of hierarchical clustering is to create a tree-shaped structure known as a dendrogram that shows the hierarchical connection of items and finds the best approach to assigning items to a cluster based on similarities and dissimilarities.**

**Knowledge  
Check**  
**2**

**What is the first step in choosing the optimal number of clusters in hierarchical clustering?**

- A. Choosing a random number
- B. Identifying the longest line that traverses the maximum vertical distance without intercepting any of the merging points in the dendrogram
- C. Counting the number of horizontal lines in the dendrogram
- D. Looking at the colors in the dendrogram



**Knowledge  
Check**  
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The correct answer is **B**

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## Knowledge Check

3

### How does ICA differ from PCA?

- A. ICA and PCA are the same techniques with different names.
- B. ICA is used for supervised learning, while PCA is used for unsupervised learning.
- C. ICA focuses on maximizing the independence of components, while PCA focuses on maximizing the variance of data points.
- D. ICA and PCA are both used for data reduction in machine learning.



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The correct answer is **C**

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**ICA focuses on maximizing the independence of components, while PCA focuses on maximizing the variance of data points.**



**Thank You!**