

## Lesson 4 Quiz

测验, 4 个问题

1  
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1.

Which of the following is a hierarchical clustering algorithm?

- ☐ K-Medoid
  - ☐ K-Means
  - ☒ BIRCH
  - ☐ DBSCAN
- 

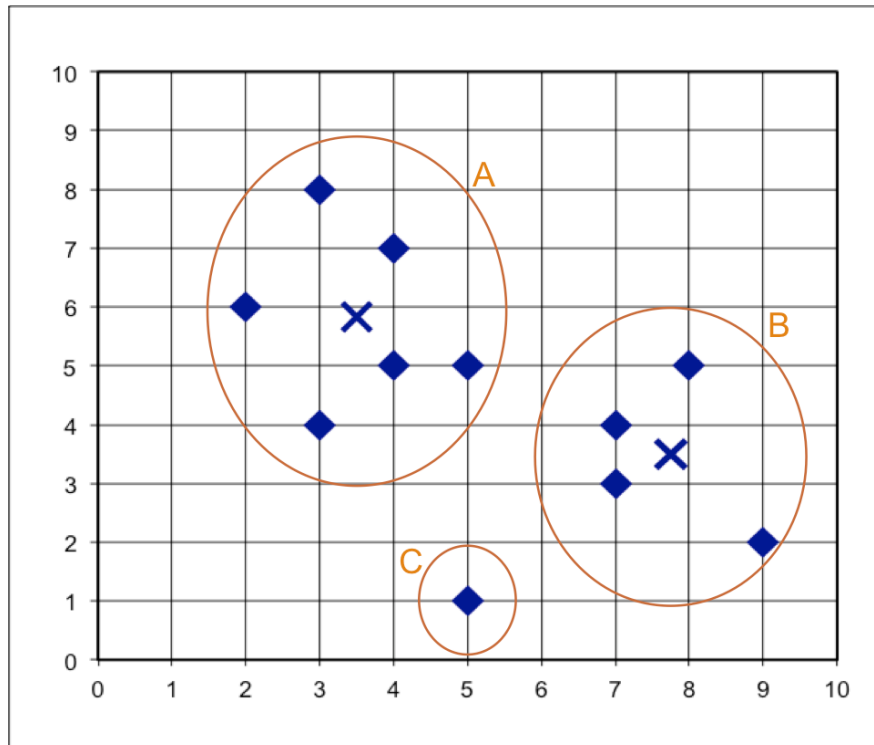
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2.

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Consider the three clusters A, B, and C shown in Figure 1. Using Euclidean distance as the similarity measure, which two clusters would be merged first in agglomerative clustering using complete link (diameter)?



- ☐ A and B
- ☐ A and C
- ☒ B and C
- ☐ All three options above are tied.

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3.

Consider the three hierarchical clustering algorithms introduced in Lecture 4, BIRCH, CURE, and CHAMELEON. Which of the following statements about these algorithms is TRUE? (Select all that apply)

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BIRCH and CHAMELEON both use a two-phase algorithm where small clusters are first formed via a divisive mechanism before some other clustering algorithm is used to merge them into the final clusters.

- ☐ All three algorithms are good at detecting irregular (nonspherical) shaped clusters.
- ☐ All three algorithms can only work with Euclidean distance as the similarity metric.
- ☒ Clustering results of BIRCH are sensitive to the insertion order of data points.

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4.

Recall from Lecture 4-8 that the objective of learning generative models is to find the parameters that maximize the likelihood of the observed data. Suppose we have a set of points  $D$  drawn from Gaussian distribution. For  $D = \{-4, 5, 14\}$ , which of the following set of parameters  $(\mu, \sigma)$  produces the maximum  $L(N(\mu, \sigma^2); D)$ ?

- ☒  $\mu = 5, \sigma = 9$
- ☐  $\mu = 4, \sigma = 5$
- ☐  $\mu = 0, \sigma = 9$
- ☐  $\mu = 5, \sigma = 4$



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