Print

Quiz

Your Score: 100%

Congratulations! Your score of 100% indicates that you've mastered the topics in this lesson. If you'd like, you can review the feedback.

When you're finished, exit the lesson.

1. When you use social networks for churn prediction, to what fact does homophily refer?

   a. Churners are more likely to be connected to other churners, and non-churners are more likely to be connected to other non-churners.
   b. Churners are more likely to be connected to non-churners.
   c. Churners and non-churners are randomly connected.

   Your answer: a
   Correct answer: a

   Homophily refers to the fact that churners are more likely to be connected to other churners, and non-churners are more likely to be connected to other non-churners.

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2. Which statement about the adjacency matrix representing a social network is ***false***?

   a. It is a symmetric matrix.
   b. It is sparse because it contains many nonzero elements.
   c. It can include weights.
   d. It has the same number of rows and columns.

   Your answer: b
   Correct answer: b

   The adjacency matrix is sparse because it contains many zero elements.

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3. Which statement is correct?

   a. The geodesic represents the longest path between two nodes.
   b. The betweenness counts the number of times that a node or edge occurs in the geodesics of the network.
   c. The graph theoretic center is the node with the highest, minimum distance to all

other nodes.

d. The closeness is always higher than the betweenness.

Your answer: b
Correct answer: b

The geodesic represents the smallest path between two nodes. The graph theoretic center is the node with the smallest, maximum distance to all other nodes. There is no relationship between the closeness and betweenness.

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4. A community is generally described as a substructure (subset of vertices) of a graph with what type of linkage?

a. dense linkage between the members of the community and sparse density outside the community

b. sparse linkage between the members of the community and dense linkage outside the community

c. sparse linkage between the members of the community and sparse density outside the community

d. dense linkage between the members of the community and dense linkage outside the community

Your answer: a
Correct answer: a

A community is generally described as a substructure (subset of vertices) of a graph with dense linkage between the members of the community and sparse density outside the community.

5. Which of the following are challenges in social network inference?

a. Data is not independent and identically distributed.

b. Inferences about nodes can affect each other, so that the collective inference procedures are needed.

c. There is no easy separation between a training set and a test set.

d. all of the above

Your answer: d
Correct answer: d

All of the mentioned issues are challenges in social network inference.

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6. What does the Markov property state?

a. The class or behavior of a node in the network depends only upon the class or

behavior of its direct neighbors.

b. The class or behavior of a node in the network is independent of the class or behavior of its direct neighbors.

Your answer: a
Correct answer: a

The Markov property states that the class or behavior of a node in the network depends only upon the class or behavior of its direct neighbors.

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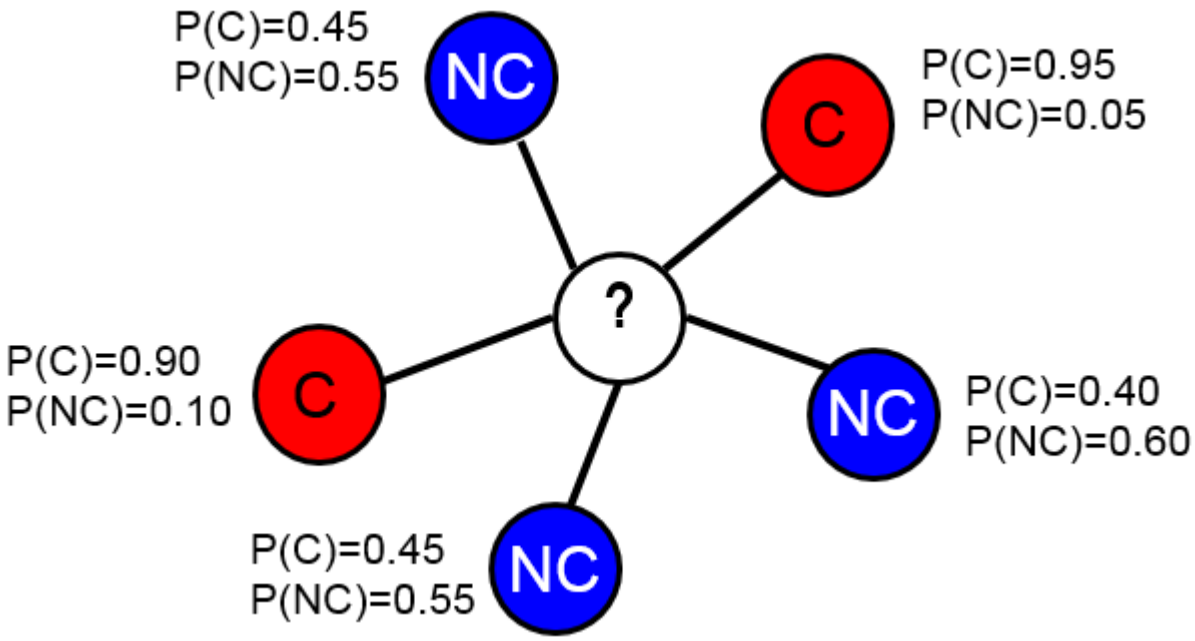
7. Consider the following social network:



According to the probabilistic relational neighbor classifier. which of the following equals the probability that the node in the middle is a churner?

a. 0.37
b. 0.63
c. 0.60
d. 0.40

Your answer: b
Correct answer: b

The probability that the middle node is a churner equals 1 / Z * (0.45 + 0.95 + 0.40 + 0.45 + 0.90) = 3.15 / Z. Likewise, the probability that the middle node is not a churner equals 1 / Z * (0.55 + 0.05 + 0.60 + 0.55 + 0.10) = 1.85 / Z. This means that Z equals 3.15 + 1.85 or 5. The probability of churn is thus 3.15 / 5 or 0.63. The probability of no churn is equal to 1.85 / 5 or 0.37.

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8. How do you define featurization?

a. selecting the most predictive features
b. adding more local features to the data set
c. making features (=inputs) out of the network characteristics
d. adding more nodes to the network

Your answer: c
Correct answer: c

Featurization refers to making features (=inputs) out of the network characteristics.

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9. What is true about a bipartite graph?

a. Every node has two network features.
b. Every node has two local features.
c. Every node has two links.
d. There are two types of nodes.

Your answer: d
Correct answer: d

In a bipartite graph, there are two types of nodes.

10. Which of the following types of data does the *GOTCHA!* fraud detection tool use?

a. local data
b. network data
c. both local and network data
d. none of the above

Your answer: c
Correct answer: c

In *GOTCHA!*, both local and network data are used.

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