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Feature Engineering quiz

7 out of 7 correct

1. Which of the following is true about nominal encoding?

   ○ It is used for ordinal data.

   ● **It assigns numerical values to categorical data.**

   ○ It converts categorical data into binary values.

   ○ It cannot handle datasets with multiple categorical variables.

   Explanation: Nominal encoding is used to transform categorical data into numerical data by assigning a unique numerical value to each category in a feature.

2. When should you use one-hot encoding?

   ○ When the number of unique categories in a feature is less than 5.

   ● **When the number of unique categories in a feature is greater than or equal to 5.**

   ○ When the dataset contains only numerical features.

   ○ When the dataset contains both numerical and categorical features.

   Explanation: One-hot encoding is preferred when a feature has a large number of unique categories, typically greater than or equal to 5.

3. Which encoding technique is preferred when the categories in a feature have an inherent order or rank?

   ○ Nominal encoding

   ○ One-hot encoding

○ Binary encoding

◉ **Ordinal encoding**

Explanation: Ordinal encoding is used when the categories in a feature have an inherent order or rank. It assigns numerical values to the categories based on their rank or order.

4. If a dataset has 3 categorical features, each with 4 unique categories, how many new features would be created if one-hot encoding is used?

○ 3

○ 4

○ 7

◉ 12

Explanation: One-hot encoding creates a new binary feature for each unique category in a categorical feature. Therefore, for 3 categorical features with 4 unique categories each, a total of 12 new features would be created.

5. Sarah is working on a machine learning project and needs to encode a categorical feature that has five unique categories. Which encoding technique should she use?

○ Nominal encoding

○ Ordinal encoding

○ Binary encoding

◉ **One-hot encoding**

Explanation: One-hot encoding creates binary features for each unique category in the feature, which is preferred for features with a larger number of unique categories.

6. Which encoding technique is preferred for features with a large number of unique categories?

○ Nominal encoding

○ Ordinal encoding

○ Binary encoding

◉ **One-hot encoding**

Explanation: One-hot encoding is preferred for features with a large number of unique categories, typically greater than or equal to 5, as it creates binary features for each category, which prevents the model from overfitting to any particular category.

7. Rachel is working with a dataset that has a categorical feature with two unique categories: "male" and "female." She wants to encode this feature so that it can be used in a machine learning model. Which of the following encoding techniques should she use?

○ Nominal encoding

○ Ordinal encoding

◉ **Binary encoding**

○ One-hot encoding

Explanation: Binary encoding converts each category into a binary code, with one binary feature representing each unique category, which is the most efficient way to encode a categorical feature with only two unique categories.

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