Feature preprocessing and generation with respect to models

Practice Quiz, 4 questions

6/6 points (100.00%)

Congratulations! You passed!

Next Item

1 / 1 point

1.
What type does a feature with values: ['low', 'middle', 'high'] most likely have?

- Numeric
- Ordinal (ordered categorical)

Correct
Correct!

- Coordinates
- Categorical
- Text
- Datetime

2 / 2 points

2.
Suppose you have a dataset X, and a version of X where each feature has been standard scaled.

For which model types training or testing quality can be much different depending on the choice of the dataset?

- [x] Linear models

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Correct
Correct! There are two reasons for this: first, amount of regularization applied to a feature depends on the feature's scale. Second, optimization methods can perform differently depending on relative scale of features.

- [x] GBDT

Un-selected is correct

- [x] Neural network

Correct
Correct! There are two reasons for this: first, amount of regularization applied to a feature depends on the feature's scale. Second, optimization methods can perform differently depending on relative scale of features.

- [x] Nearest neighbours

Correct
Correct! The reason for it is that the scale of features impacts the distance between samples. Thus, with different scaling of the features nearest neighbors for a selected object can be very different.

- [x] Random Forest

Un-selected is correct

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1 / 1 point

3.
Suppose we want to fit a GBDT model to a data with a categorical feature. We need to somehow encode the feature. Which of the following statements are true?

- [ ] One-hot encoding is always better than label encoding
- [ ] Label encoding is always better to use than one-hot encoding

Depending on the dataset either of label encoder or one-hot encoder could be better

Correct

Correct! It's good idea to try both, if you don't have any better ideas to try.

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2 / 2 points

4.

What can be useful to do about missing values?

- [x] Nothing, but use a model that can deal with them out of the box

Correct

Some models like XGBoost and CatBoost can deal with missing values out-of-box. These models have special methods to treat them and a model's quality can benefit from it.

- [x] Impute with a feature mean

Correct

This is one of the most frequent ways to deal with missing values.

- [x] Reconstruct them (for example train a model to predict the missing values)

Correct

This one is tricky, but sometimes it can prove useful.

- [ ] Impute with feature variance

Un-selected is correct

- [ ] Apply standard scaler

Un-selected is correct

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- [x] Replace them with a constant (-1/-999/etc.)

Correct

This is one of the most frequent ways to deal with missing values.

- [x] Remove rows with missing values

Correct

This one is possible, but it can lead to loss of important samples and a quality decrease.