Quiz M4.02

Note: For each question **make sure you select all of the correct options—** there may be more than one! Don't forget to use the sandbox notebook if you need.

Question 1 (1/1 point)

Let us consider a pipeline that combines a polynomial feature extraction of degree 2 and a linear regression model. Let us assume that the linear regression coefficients are all non-zero and that the dataset contains a single feature. Is the prediction function of this pipeline a straight line?

- a) yes
- b) no ✔

EXPLANATION

Solution: b)

The prediction function of a linear regression model directly applied to the original feature without transformation would be a straight line. However since the polynomial feature transformation is a non-linear transformation, the resulting pipeline is non-linear and can approximate smooth curvy data as shown in the previous notebook.

You have used 1 of 1 submissions

Question 2 (1/1 point)

of `coef_` and `intercept_`.

- a) it is not possible to fit a linear regression in dimension higher than 2
- b) array of shape (`n_features` ,) and a float ✔
- c) array of shape (1, `n_features`) and an array of shape (1,)

EXPLANATION

Solution: b)

You could write some code to get this answer (try it!). Another way is to look at the doc of LinearRegression.

In the "Parameters" sections it says:

```
coef_ : array of shape (n_features,) or (n_targets, n_features)
intercept_ : float or array of shape (n_targets,)
```

You have used 1 of 1 submissions

Question 3 (1/1 point)

Combining (one or more) feature engineering transformers in a single pipeline:

- [x] a) increases the expressivity of the model ✔
- [ ] b) ensures that models extrapolate accurately regardless of the distribution of the data
- [x] c) may require tuning additional hyperparameters ✔

✔

Select all answers that apply

EXPLANATION

Solution: a) c)

Combining transformers doesn't inherently address underfitting nor overfitting, as model tuning might still be essential depending on the complexity of the data and the task. If the engineered features are indeed predictive, they can help mitigate underfitting, but it's never guaranteed.

Accurate extrapolation is never guaranteed and fundamentally requires external knowledge about the nature of the problem.

You have used 2 of 2 submissions

YOUR EXPERIENCE

According to you, this whole 'Modelling with a non-linear relationship data-target' lesson was:

- ○ **Too easy, I got bored**
- ○ **Adapted to my skills**
- ○ **Difficult but I was able to follow**
- ○ **Too difficult**

Submit

To follow this lesson, I spent:

- ○ **less than 30 minutes**
- ○ **30 min to 1 hour**
- ○ **1 to 2 hours**

- ○ **I don't know**

Submit

FORUM (EXTERNAL RESOURCE)

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