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21. When implementing linear regression of some dependent variable y on the set of independent variables $\mathbf{x} = (x_1, \dots, x_r)$, where r is the number of predictors, which of the following statements will be true?

Ans: Both a and b

22. What indicates that you have a perfect fit in linear regression?

Ans: The value $R^2 = 1$, which corresponds to $SSR = 0$

23. In simple linear regression, the value of what shows the point where the estimated regression line crosses the y axis?

Ans: B_0

24. Check out these four linear regression plots:

Which one represents an underfitted model?

Ans: The top-left plot ($R^2=0.09$)

25. There are five basic steps when you're implementing linear regression:

- a. Check the results of model fitting to know whether the model is satisfactory.
- b. Provide data to work with, and eventually do appropriate transformations.
- c. Apply the model for predictions.

- d. Import the packages and classes that you need.
- e. Create a regression model and fit it with existing data.

However, those steps are currently listed in the wrong order. What's the correct order?

Ans: d, b, e, a, c

26. Which of the following are optional parameters to LinearRegression in scikit-learn?

Ans: fit_intercept, normalize, copy_X & n_jobs.

27. While working with scikit-learn, in which type of regression do you need to transform the array of inputs to include nonlinear terms such as x^2 ?

Ans: Polynomial regression

28. You should choose statsmodels over scikit-learn when:

Ans: You need more detailed results.

29. _____ is a fundamental package for scientific computing with Python. It offers comprehensive mathematical functions, random number generators, linear algebra routines, Fourier transforms, and more. It provides a high-level syntax that makes it accessible and productive.

Ans: Numpy

30. _____ is a Python data visualization library based on Matplotlib. It provides a high-level interface for drawing attractive and informative statistical graphics that allow you to explore and understand your data. It integrates closely with pandas data structures.

Ans: Seaborn