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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?

Answer is both a and b

a) $\beta_0, \beta_1, \dots, \beta_r$ are the regression coefficients.

b) Linear regression is about determining the best predicted weights by using the method of ordinary least squares

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

Answer is d) 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?

Answer is b) B_0

24) Check out these four linear regression plots:

Which one represents an underfitted model?

Answer d) The top-left plot

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

The correct order answer is:

b) Provide data to work with, and eventually do appropriate transformations.

d) Import the packages and classes that you need.

e) Create a regression model and fit it with existing data.

a) Check the results of model fitting to know whether the model is satisfactory.

c) Apply the model for predictions.

which is

b) e, d, b, a, c.

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

Answer: The optional parameters to LinearRegression in scikit-learn are b), c), d), and e).

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 ?

Answer is c) Polynomial regression

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

Answer is c) 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.

Answer is b) 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.

Answer is b) Seaborn

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