

MCQ Assignment 2

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?

- 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.
- c) E is the random interval
- d) Both a and b

Ans. d) Both a and b

22)

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

- a) The value $R^2 < 1$, which corresponds to $SSR = 0$
- b) The value $R^2 = 0$, which corresponds to $SSR = 1$
- c) The value $R^2 > 0$, which corresponds to $SSR = 1$
- d) The value $R^2 = 1$, which corresponds to $SSR = 0$

Ans. 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 \hat{y} axis?

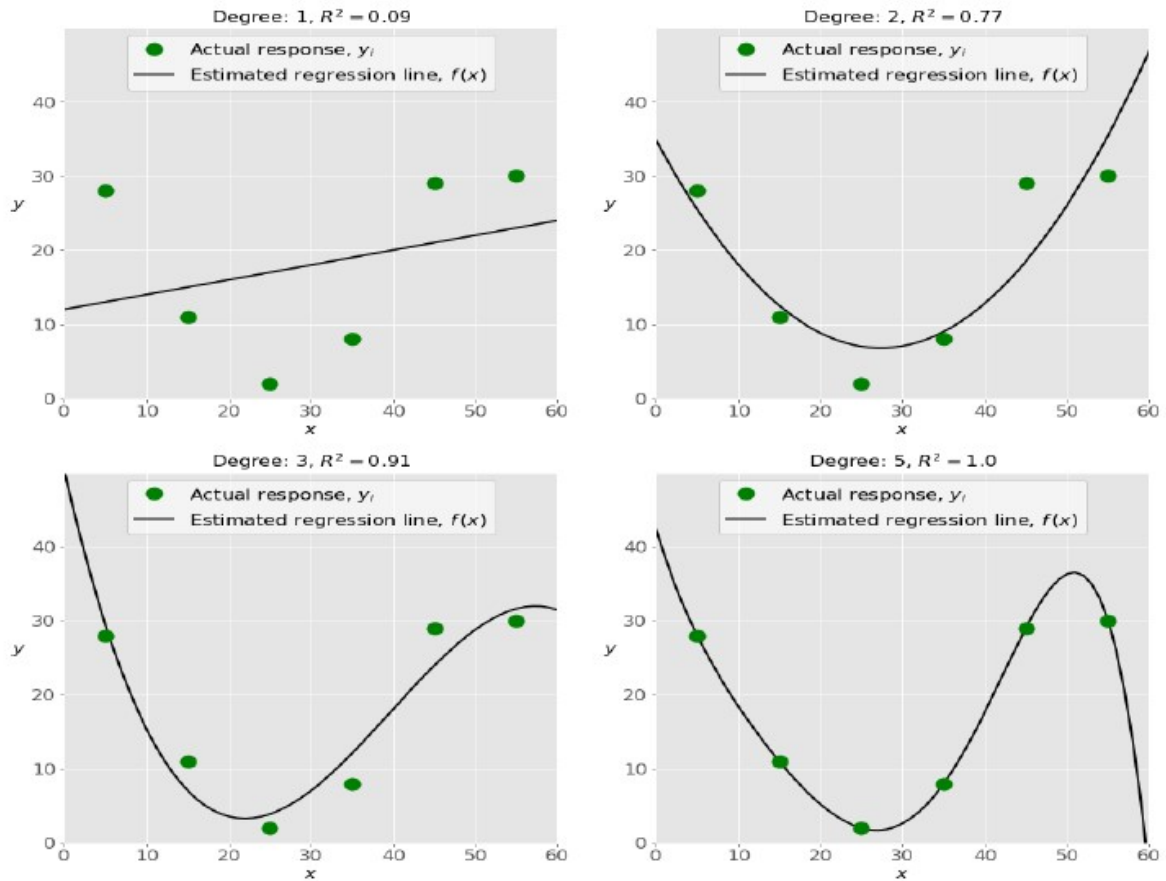
- a) Y
- b) B_0
- c) B_1
- d) F

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Ans. b) B0

24)

Check out these four linear regression plots:



Which one represents an underfitted model?

- a) The bottom-left plot
- b) The top-right plot
- c) The bottom-right plot
- d) The top-left plot

Ans. d) The top-left plot

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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?

a) e, c, a, b, d

b) e, d, b, a, c

c) d, e, c, b, a

d) d, b, e, a, c

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

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

a) Fit

b) fit_intercept

c) normalize

d) copy_X

e) n_jobs

f) reshape

Ans. b) fit_intercept, c) normalize, d) copy_X, and e) n_jobs.

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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 ?

- a) Multiple linear regression
- b) Simple linear regression
- c) Polynomial regression

Ans. c) Polynomial regression

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

- A) You want graphical representations of your data.
- b) You're working with nonlinear terms.
- c) You need more detailed results.
- d) You need to include optional parameters.

Ans. 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.

- a) Pandas
- b) Numpy
- c) Statsmodel
- d) scipy

Ans. b) Numpy

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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.

- a) Bokeh
- b) Seaborn
- c) Matplotlib
- d) Dash

Ans. b) Seaborn