X

Week 6: Assignment 6

The due date for submitting this assignment has passed.

Due on 2021-09-08, 23:59 IST.

Assignment submitted on 2021-09-08, 19:07 IST

1) The Pearson correlation coefficient for the given data is ___ ***1 point***

X	4.5	4.2	3.21	2.1	9.8
Y	2.3	2.1	1.5	1.0	6.8

- 0.71
- -0.82
- 0.99
- -0.99

Yes, the answer is correct.
Score: 1

Accepted Answers:
0.99

2) Data was collected from a laptop manufacturer for a study, to understand the impact of battery life of a laptop on customer satisfaction (in terms of ratings). The data consisted of ***ratings (y)*** provided for each laptop based on their ***battery life (x)*** (in years). The following regression model was obtained ***1 point***

$$y = 1.98 + 0.5x$$

From the given linear regression model, the value 1.98 represents the ___

- slope
- error
- intercept

prediction

Yes, the answer is correct.
Score: 1
Accepted Answers:
intercept

3) Homoscedasticity in regression analysis is the condition in which the ***1 point***

- (•) error variance remains the same
- ( ) error variance is non-uniform
- ( ) error variance is equal to zero
- ( ) none of the above

Yes, the answer is correct.
Score: 1
Accepted Answers:
error variance remains the same

4) For the best linear regression model, R^2 value should be ___ ***1 point***

- ( ) equal to 0
- ( ) less than 0
- (•) equal to 1
- ( ) none of the above

Yes, the answer is correct.
Score: 1
Accepted Answers:
equal to 1

5) ***1 point***

```
Call:
lm(formula = salary$Salary ~ salary$Years_of_exp)

Residuals:
    Min      1Q  Median      3Q     Max
-5523.6 -3698.7   551.6  1905.9 12620.2

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)           17382       2231   7.793 3.56e-07 ***
salary$Years_of_exp   11427       1140  10.019 8.67e-09 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4555 on 18 degrees of freedom
Multiple R-squared:  0.848,     Adjusted R-squared:  0.8395
F-statistic: 100.4 on 1 and 18 DF,  p-value: 8.672e-09
```

Based on the image given above, a model was built with an objective to predict the salary of an

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individual based on the years of experience. From the given output, what does the p-value indicate with respect to hypothesis testing?

- [ ] The model failed to reject the null hypothesis
- [x] There is a strong evidence of a relationship between salary and years of experience
- [ ] There is a strong evidence that there is no relationship between salary and years of experience
- [x] The null hypothesis can be rejected

Yes, the answer is correct.
Score: 1
Accepted Answers:
There is a strong evidence of a relationship between salary and years of experience
The null hypothesis can be rejected

Read the dataset ***auto.csv (https://drive.google.com/file/d/1sh2EhMzcMezF_BwPhXT-nmy52G-I35BB/view?usp=sharing)*** and answer the questions 6 – 8 based on the same. The dataset contains the weight and fuel consumption details of different cars.

Variables	Description
mpg	miles per gallon
weight	vehicle weight (lbs.)

The objective of the problem is to predict ***mpg*** (miles per gallon) using ***weight*** of the vehicle.

6) The adjusted R^2 for the linear model is ___ ***1 point***

- ( ) 0.87
- (•) 0.77
- ( ) 0.97
- ( ) None of the above

Yes, the answer is correct.
Score: 1
Accepted Answers:
0.77

7) The third quartile residual value for the linear model built is ___ ***1 point***

- ( ) -1.91
- ( ) -7.21
- (•) -0.08
- ( ) 1.73

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.73

8) The t value corresponding to the coefficient of weight is ___ ***1 point***

- 62.77
- -31.71
- 40.56
- None of the above

Yes, the answer is correct.
Score: 1

Accepted Answers:
-31.71