


<https://swayam.gov.in>

https://swayam.gov.in/nc_details/NPTEL

anikets349@gmail.com ▾

 NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Data Science for Engineers (course)


Course outline

How does an NPTEL online course work?

Setup Guide

Pre Course Material

Week 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

☐ Module : Predictive Modelling (unit? unit=73&lesson=74)

☐ Linear Regression

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 **1 point** 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

$$y = 1.98 + 0.5x$$

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

- ☐ slope
☐ error
☒ intercept

(unit?
unit=73&lesson=75)

○ Model
Assessment
(unit?
unit=73&lesson=76)

○ Diagnostics to
Improve Linear
Model Fit
(unit?
unit=73&lesson=77)

○ Simple Linear
Regression
Model Building
(unit?
unit=73&lesson=78)

○ Simple Linear
Regression
Model
Assessment
(unit?
unit=73&lesson=79)

○ Simple Linear
Regression
Model
Assessment (Continued)
(unit?
unit=73&lesson=80)

○ Multiple Linear
Regression
(unit?
unit=73&lesson=81)

○ Dataset (unit?
unit=73&lesson=82)

○ FAQ (unit?
unit=73&lesson=83)

○ Week 6
Feedback
Form: Data
Science for
Engineers
(unit?
unit=73&lesson=84)

● Practice: Week
6: Assignment
6 (Non
Graded)
(assessment?
name=125)

● Quiz: Week 6:
Assignment 6

☐ 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

(assessment?
name=137)

Week 6:
Solution (unit?
unit=73&lesson=144)

Week 7

Week 8

Text Transcripts

Download
Videos

Books

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
- ☒ 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
- ☒ 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
<i>mpg</i>	miles per gallon
<i>weight</i>	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