Course / Assessments / Assignment 2

Previous   Next

Assignment 2

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Q1

Linear regression is an Algorithm to predict a

○ Discrete response variable based on a set of continuous regressors

◉ Continuous response variable based on a set of continuous regressors

○ Continuous response variable based on a set of discrete regressors

○ Discrete response variable based on a set of discrete regressors

✔

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Q2

Consider the ML example below for prediction of sales based on advertising

Year	Sales (Million Euro)	Advertising (Million Euro)
1	651	23
2	762	26
3	856	30
4	1,063	34
5	1,190	43
6	1,298	48
7	1,421	52
8	1,440	57
9	1,518	58

In this example, Sales is the

○ Regressor

◉ Response

○ Regression coefficient

○ Model error

✔

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Q3

Consider the ML example below for prediction of sales based on advertising

Year	Sales (Million Euro)	Advertising (Million Euro)
1	651	23
2	762	26
3	856	30
4	1,063	34
5	1,190	43
6	1,298	48
7	1,421	52
8	1,440	57

8	1,440	57
9	1,518	58

In this example, Advertising is the

- ○ Response
- ○ Regression coefficient
- ○ Model error
- ⦿ Regressor

✔

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Q4

1.0/1.0 point (graded)

Consider the linear regression model below

$$y(k) = h_0 + h_1 x_1(k) + \cdots + h_n x_n(k) + \epsilon(k)$$

The quantities h_i are

- ○ Regressor
- ○ Response
- ⦿ Regression coefficient
- ○ Model error

✔

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Q5

1.0/1.0 point (graded)

The regression coefficient vector from the training data is determined as

- ⦿ $\bar{h} = (X^T X)^{-1} X^T \bar{y}$

- ○ $\bar{h} = X^T (X^T X)^{-1} \bar{y}$

- ○ $\bar{h} = (X^T X)^{-1} X \bar{y}$

- ○ $\bar{h} = (XX^T)^{-1} X^T \bar{y}$

✔

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Q6

1.0/1.0 point (graded)

The linear regression module can be imported in PYTHON as

○ from sklearn.linear_model import Regression

◉ from sklearn.linear_model import LinearRegression

○ from sklearn import LinearRegression

○ from sklearn import Regression

✔

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Q7

1.0/1.0 point (graded)
Metric used to characterize performance of linear regression is

○ Only mean_squared_error but not r2_score

○ Only r2_score but not mean_squared_error

◉ Both r2_score and mean_squared_error

○ Neither r2_score nor mean_squared_error

✔

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Q8

1.0/1.0 point (graded)
The train_test_split subroutine is imported as

○ from sklearn import train_test_split

○ from sklearn.model import train_test_split

◉ from sklearn.model_selection import train_test_split

○ from numpy import train_test_split

✔

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Q9

1.0/1.0 point (graded)
The Boston dataset comprises of

○ Information concerning shopping in the area of Boston Mass

◉ information concerning housing in the area of Boston Mass

○ information concerning weather in the area of Boston Mass

○ information concerning diabetes in the area of Boston Mass

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Q10

1.0/1.0 point (graded)

The linear regression model can be applied as

○ reg = Regression()
reg.fit(X_train, y_train)

○ reg = LinearRegression()
reg.fit(y_train, X_train)

○ reg = Regression()
reg.fit(y_train, X_train)

● reg = LinearRegression()
reg.fit(X_train, y_train)

✔

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< Previous   Next >

ipearl.ai
from TalentSprint