Page ____

Linear Regression using error square method

import panders as pd import numpy as np import matplotlib.pyplot as plt

dataset = pd.kad-ssv ('(content /saler. (sv')

print (dataset. head!))

weiks = dataset ['xi(weik)']. values

saler = dataset ['yi(sales in Housands)']. values-

X = weeks. ushape(-1, 1)Y = sales. ushape(-1, 1)

X-b = np.c = [np.ones((len(X); 1)), X]

theto = $np.linlag.inv(x_b, T.dot(x_b)).dot(x_b, T).dot(Y)$ b = theta[0]m = theta[1]

print (f"the regression equation is: $y = \{ m(0): .243 \times + \{ b(0): .243 \} \}$)

predicted_saley_7 = m*7+bpredicted_saley_9 = m*9+b

print (f" Predicted sales for the 7th weet: & predicted-sales -7[0]:.2f3 thousand")

print () " Redicted saly for the 9th week: E predicted_sales_9

[0]:.2f3 thousand")

	pit. scatter (weeks, sales, color = "blue", label = "para pointy")	
	plt. scatter (weeks, sale, color = 'ted', plt. plot (weeks, m + weeks + b, color = 'ted', plt. plot (weeks, m + weeks + b, color = 'ted',	
-	plt. plot (weeks, m + weeks + b , color = m(0]:.2f 3 x + label = f'Linear Regression: y = & m(0]:.2f 3 x +	1
-	{ b(o]:.2/3')	TEL
	plt. x label (" weeks")	
	plt. x label (" saler (in thousands))	77
	plt. white (Sales date and Linear regression)	
	ph. wither c said was	77
	plt. legend ()	
	plh show()	
	Out and the second seco	77
	owpur: Xi(week) yi (sales in thousands)	Tr
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	1 1 2.8	4
		4
	2 2 2.6	43
	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1
	4 4 3.8	1/8
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	The regression equation it: $y = 0.66x + 0.54$	11
	Predicted sales for the 7th week: 5.16 thousand	
	Predicted Saler for the 9th week: 6.48 thousand	100
		100
	Saly Data and Linear Regression	
	· Dava poins	
nds	3.5 - Linear regression: y = 0.66 x + 0.54	
Wa		TH
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	weeks	1
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Linear Regression using error squared method
  import pandus as pd
  Import numpy as np
  import malplotlib. pyplot as plt
  dulaser = pd. rad_csv("content/salos fesv")
  print (devases, head ())
  weeks = daygset ( x 11 weeks) J. values
 Saler = day er [4] (Suder in thousands) 1. values
  n = len (weeles)
  Sum_x = np. sum(weeks)
 sum-y = np. sum (sales)
 Sum - 22 = np. sum (weeks ++2)
 sum - xy = np. sum (weeles * sales)
m = (n + sum-my - sum- + sum-y)/(n + sum- 22
   - Sum= x + 2)
 b = (sum-y-m* sum-x)/n
print (+"The regression equation is: y = § m: . 2 f 3 x +
  · $6:.2/3")
print of Predicted soler for the week: & predicted-sales-71.213
    thousand ")
print (1" Predicted sailer for our week: & predicted-sales: 2 f3
      (hory and )
```

plt, souther (weeles, sales, color = "blue", l'abel= "Data points plt. plot (weeks, m+ weeks +b, color='led', label = f'Linear Reguession: y= {m1.2} 3x + {b1.2431) plt. mlabel ("Weeks") plt. ylabel (sales (in thousands)) plt. tille (sales Data and Linear regression) plt. regend() plt. show() Talput: The regression quation is y=0.662 +0.54 Predicted sales for the 7th week: 5,16 thousand Rededed sales for the 9th week: 6.48 thousand Seles Data and Linear Reytestion · Dala points - Linear regression 1.4 = 0.662 +0.54 20 2.5 3.6 3.5 4.0 4.5 5.0 week 5