## PARSHWANATH CHARITABLE TRUST'S



## A.P. SHAH INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering
Data Science



Semester : VI

**Subject : Machine Learning** 

Academic Year: 2023 - 2024

	Least Square Method
	Excumple:
	Tom who is the owner of a notail shop, town
	He is ( lift of Tishits on the number T-shirt)
_	the price of different T-shirts is the number T-shirt
_	sold at his shop over a period of one week
_	· let us use the concept of least squares regren
_	· let us use the concept of peast squares regrer to find the lines of best fit for the below data.
	Step 1: - Calculate the slop 'm' x axis by using the following formula in dollars (x) sold (7)
	following formula in dollars (x) sold (7)
	2 4
	$m = n \leq xy - (\leq x) (\leq y)$ 3
	$n \ge x^2 - (\ge x)^2$ 5
	5(263)-(26)(41)
	m = 5×(168) - (26)2 9 15
	- 1315 - 1066 249
	840 - 676 164
	m = 1.518 approximally
	Step 2: - Compute the 4-intercept value (m=1.518)
	C = y - mx
	(= (mean of y) - m (mean of x)
	= 8.2 - (1.518)(5.2)
	C = 0.305 approximat
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			And the second
pour Substite	He the va	lue it st	would look
Somethin 1			20 21.
o. of tshirt		error	
Sold (Y)	3 24 2		A 4-1
. 4	3.3	-0.67	
5	4.9	-0:14	* * * * * * * * * * * * * * * * * * * *
7'	7.9	6.89	1
0	10-9	0.93	
15	13.9	-1.03	
	Something 1 Something 1 so of tshirt Sold (Y) 4 5	y=mx+6  you substitute the va  Something like this  o oftshirt y=mx+c  Sold (y)  y 3.3  5 4.9  7' 7.9  10 10.9	501d (Y)  4 3.3 -0.67  5 4.9 -0.14  7' 7.9 5.89  10 10.9 0.93

lets constru	7 = mx +	& line	of ben	fil.	
9 †		-1			
7	/.			4 4	
6 -		10.,000	A Comment		
3 1					
3 -			10000	1,1	
2	Vari	-1-			

Now Tom con ine the above equation to estimate how many T-shirts of price \$8 can be sell at the relail shop  $\gamma = 1.5(8 \times 8 + 0.305 = 12.45)$ . This come down to 13 T-shirts!