

Department of Computer Science and Engineering Data Science



Subject Statistice for AIDS Academic Year: 2023 2024

Find the coefficient of correlation and obtain the equation of line of regression for the given dala

х	Ь	2	10	4	8
y	9	11	5	, 8	न ·

Solution

To find condition of coefficient:

$$X = x - \overline{x}$$
 $Y = y - \overline{y}$

=>x = \(\frac{2}{2}\) = \(\frac{30}{2}\) = 6 \(\Rightarrow\) \(\frac{7}{2}\) = \(\frac{10}{2}\) = 8.

		3				
x	y	X = x-x	Y=y-9	Χº	y2	XY
-	0		1	0	(9
6	9	0	3	16	9	-12
2	11	- 4		16	9	-12
10	5	4	- 3			0
4	8	-2	٥	4	1.	-2
8	7	2	-(4	30	-26
			To tal.	40	20	

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. Couldicien of Correlation:

Equation of Regression line Y on X,

$$(y-\overline{y}) = \underbrace{\mathbb{Z} \times Y}_{\mathbb{Z} \times \mathbb{Z}} (x-\overline{x}).$$
 $(or) \cdot (y-\overline{y}) = \underbrace{v \cdot 6y}_{6x} (x-\overline{y})$

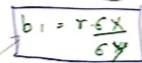
(or) =
$$(x-\overline{y}) = \frac{x_1 \cdot 6y}{6x} (x-\overline{x})$$

$$(Y-8) = -26 (x-6)$$

Equation of Regression Line Xon Y,

(x-x) = \(\begin{array}{c} \times \times \ \ \times \ \exp \exp \exp \ \ \ \times \ \exp \ \quad \exp \ \exp \quad \exp \ \exp \quad \e

$$(x-6) = -26 (y-8)$$



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Subject: Statistics for ATLDS Academic Year: 2073 2024

Examples

Find the equation of line of regression and the coefficient of coneation for the following data:

. Solution:

$$\bar{x} = \frac{2x}{n} = \frac{36}{6} = 6$$

		1 0				
×	y	X = X - X	Y=y-y	x 2	Y	ΧУ.
2	18	-4	8	16	64	-32
4	12	-2	2	4	4	-4
5	10	-1	ь	1	O	0
6	8	0	- 2	0	4	0
8	7	2	-3	4	9	-6
-11	5	5	-5	25	25	-25
,			Total.	50	106	-67
-11	5	5	-5 Total·			

$$T = \frac{\text{EXY}}{\sqrt{\text{Ex}^2 \cdot \text{EY}^2}} = \frac{-67}{\sqrt{50 \times 106}}$$

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Semester:



Subject: Statistics for AILDS

Academic Year: 20

Equation of Regression Line You X,

Equation of Regression Line Xon Y,

$$(x-\overline{x}) = \frac{\sum xy}{\sum y^2} (y-\overline{y})$$

$$(x-x6) = \frac{-67}{106} (y-10)$$

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