

Ejercicio 7

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

$$\bar{x} = 7.1$$

$$\bar{y} = 7.5$$

Equipo	Hora de capacitación	Satisfacción del cliente (7-10)
1	5	7
2	8	8
3	4	6
4	10	9
5	7	7
6	9	8

X	Y	$x_i - \bar{x}$	$(x_i - \bar{x})(y_i - \bar{y})$	$(x_i - \bar{x})^2$	$(y_i - \bar{y})^2$
5	7	-2.1	-0.05	4.41	0.25
8	8	0.9	0.45	0.81	0.25
4	6	-3.1	-4.65	9.61	2.25
10	9	2.9	4.35	8.41	0.25
7	7	-0.1	0.05	0.01	0.25
9	8	1.9	0.95	3.61	0.25
Σ		11.5	26.8	36.8	3.5

$$\sqrt{36.8} = \sqrt{147.7} = 12.15$$

$$r = \frac{11.5}{12.15} = 0.9465 = 94.65\%$$

Ejercicio 2

$$(x_i - \bar{x}) = -2.5, -0.5, -1.5, 1.5, 0.5, 2.5$$

$$(y_i - \bar{y}) = -20.83, -0.83, -5.83, 9.17, 4.17, 14.17$$

$$\bar{x} = 12.5$$

$$\bar{y} = 220.83$$

$$(x_i - \bar{x})(y_i - \bar{y}) = 52.075, 0.415, 8.745, 13.755, 2.085, 35.425 = \sum 112.55$$

$$\bar{y} = 220.83$$

$$(x_i - \bar{x})^2 = 6.25, 0.25, 2.25, 2.25, 0.25, 6.25 = 17.5$$

$$(y_i - \bar{y})^2 = 433.88, 0.6889, 33.98, 84.08, 17.38, 200.98 = 770.78$$

$$\sum x \sum y = 13.448.65 = 115.96$$

$$r = \frac{112.5}{115.96}$$

Ejercicio

Inc
Economic
Tiempo

E satisf
(25)(3
50

$$20 - 15 =$$

$$8 - 10 =$$

$$70 - 15 =$$

$$15 - 70 =$$

$$a = 0$$

Grado

$$2 - 1$$

X

3

Graco 5

Scribe

$$\hat{y} = B_0 + B_1 x$$

$$B_1 = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sum (x_i - \bar{x})^2}$$

$$B_0 = \bar{y} - B_1 \bar{x}$$

$$\hat{y} = 4.47 + 0.4281 x$$

X	y	$x_i - \bar{x}$	$y_i - \bar{y}$	$(x_i - \bar{x})(y_i - \bar{y})$	$(x_i - \bar{x})^2$	$(y_i - \bar{y})^2$
5	7	-2.1	-0.5	1.05	4.41	0.25
8	8	0.9	0.5	0.45	0.81	0.25
4	6	-3.1	-1.5	4.65	9.61	2.25
10	9	2.9	1.5	4.35	8.41	2.25
7	7	-0.1	-0.5	0.05	0.01	0.25
9	8	1.9	0.5	0.95	3.61	0.25
		Σ		11.5	26.86	5.5

X	y	\hat{y}	$y_i - \hat{y}_i$	$(y_i - \hat{y}_i)^2$
5	7	6.61	0.39	0.15
8	8	7.89	0.11	0.01
4	6	6.18	-0.18	0.03
10	9	8.75	0.25	0.06
7	7	7.46	-0.46	0.21
9	8	8.32	-0.32	0.10
			Σ	0.56

$$R^2 = 1 - \frac{0.56}{5.5}$$

$$R^2 = 1 - 0.10$$

$$R^2 = 0.9$$

Ejercicio 4

Inc	Satis	Ins
Economico	20 = 15	5 = 10 = 2S
Tiempo L	10 = 15	15 = 10 = 2S
	30	20 = 50

$$E \text{ satisfecho} = \frac{(25)(30)}{50} = 15 \quad T. \text{ satisfecho} = \frac{(25)(30)}{50} = 15$$

$$20 - 15 = S^2 = 25 / 15 = 1.6$$

$$5 - 10 = (-5)^2 = 25 / 15 = 1.6$$

$$10 - 15 = (-5)^2 = 25 / 15 = 1.6$$

$$15 - 10 = 5^2 = 25 / 15 = 1.6$$

$$\chi^2 = 8.2$$

$$\alpha = 0.05$$

Grados de libertad

$$2 - 1 = 1 \quad 2 - 1 = 1 \quad 1 \times 1 = 1$$

$$\chi^2 = 3.84 \text{ n. critico}$$

$$\chi^2 = 8.2 = 3.13$$

Hay mucha relacion entre el Incentivo Satisfecho laboral de los empleados

EXERCICIO 3

01/10/2024

Scribble

Departamentos	Capacitación Presencial	capacitación En línea
Ventas	15	10
Producción	9	12
Administración	10	15

1 Paso

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$E_i = \frac{\text{tot. filas} \times \text{total. col.}}{\text{total. grial.}}$$

Paso 2

Dep	P _i	L
V	15	10
P	9	12
A	10	15
	33	37
	P _r	L

$15 - 11.78 = 3.22$
 $9 - 9.42 = -0.42$
 $10 - 11.78 = -1.78$
 $10 - 13.21 = -3.21$
 $12 - 10.57 = 1.43$
 $15 - 13.21 = 1.79$

No hay relación entre el departamento que permanece el empleado con la capacitación presencial en línea

Paso 3

$15 - 11.78 = 3.22^2 = 10.36 / 11.78 = 0.87$
 $9 - 9.42 = (-0.42)^2 = 0.18 / 9.42 = 0.21$
 $10 - 11.78 = (-1.78)^2 = 3.16 / 11.78 = 0.26$
 $10 - 13.21 = (-3.21)^2 = 10.30 / 13.21 = 0.78$
 $12 - 10.57 = 1.43^2 = 2.04 / 10.57 = 0.19$
 $15 - 13.21 = 1.79^2 = 3.20 / 13.21 = 0.24$
 $\chi^2 = 2.55$

$\alpha = 0.05$

$\chi^2_{0.05} = 5.991$

$2.55 / 5.991 = 0.42$

Df = 2

Problema 6

X	y	$x_i - \bar{x}$	$y_i - \bar{y}$	$(x_i - \bar{x})(y_i - \bar{y})$	$(x_i - \bar{x})^2$	$(y_i - \bar{y})^2$
10	200	-2.5	-20.83	52.075	6.25	433.889
12	220	-0.5	-0.83	0.415	0.25	0.6889
11	215	-1.5	-5.83	8.745	2.25	33.98
14	230	1.5	9.17	13.755	2.25	84.08
13	205	0.5	4.17	2.085	0.25	17.38
15	235	2.5	14.17	35.425	6.25	200.78

$$\sum 112.55 \quad 17.5 \quad 770.78$$

$$B_1 = \frac{112.55}{17.5} = 6.4314$$

$$B_0 = 220.83 - (6.4314)(17.5)$$

$$B_0 = 220.83 - 112.5495 = 108.2805$$

$$\hat{y} = 108.2805 + 6.4314x$$

X	y
10	200
12	220
11	215
14	230
13	205
15	235

Relacion
positiva