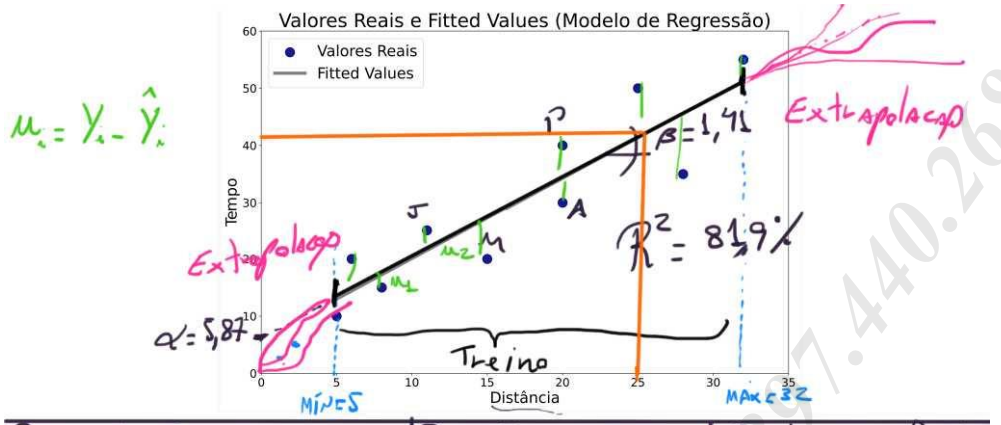
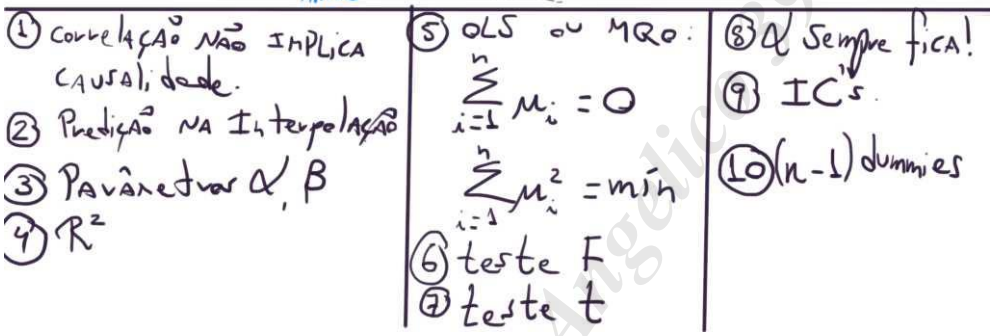
Prof. Luiz Paulo Lopes Fávero

PRINTS REALIZADOS DURANTE A AULA DE 30/07/2024:





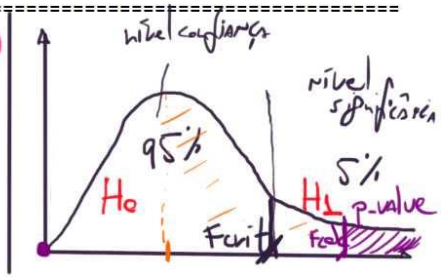
Dep. Variable:		tempo	R-squared:			0.819
Model:		OLS	Adj. R-squared:			0.797
Method:		Least Squares	F-statistic:			36.30
Date:		Tue, 30 Jul 2024	Prob (F-statistic):		p-value	0.000314
Time:		19:21:48	Log-Likelihood:			-32.123
No. Observations:		10	AIC:			68.25
Df Residuals:		8	BIC:			68.85
Df Model:		1				
Covariance Type:		nonrobust				
	coef	std err	t	P>|t|	[0.025	0.975]
Intercept (α)	5.8784	4.532	1.297	0.231	-4.573	16.330
distancia (β)	1.4189	0.235	6.025	0.000	0.876	1.962
Omnibus:		1.016	Durbin-Watson:			2.099
Prob(Omnibus):		0.602	Jarque-Bera (JB):			0.694
Skew:		-0.262	Prob(JB):			0.707
Kurtosis:		1.820	Cond. No.			41.1

IC = 95%

$$F = \frac{SQM/k}{SQErro/(n-k-1)}$$

df modelo (k)

df resíduos



Se $F_{calc} \geq F_{crít} \rightarrow H_1$

$p\text{-value} \leq 0,05$.

pelo menos 1 β estatisticamente $\neq 0$.

Há Modelo!

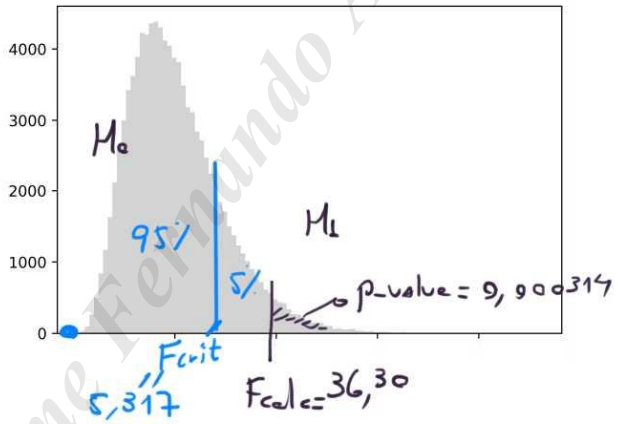
Se $F_{calc} < F_{crít} \rightarrow H_0$

$p\text{-value} > 0,05$

$\beta_1 = \beta_2 = \dots = \beta_K = 0$

Não Há Modelo!

F (Fisher / Snedecor)

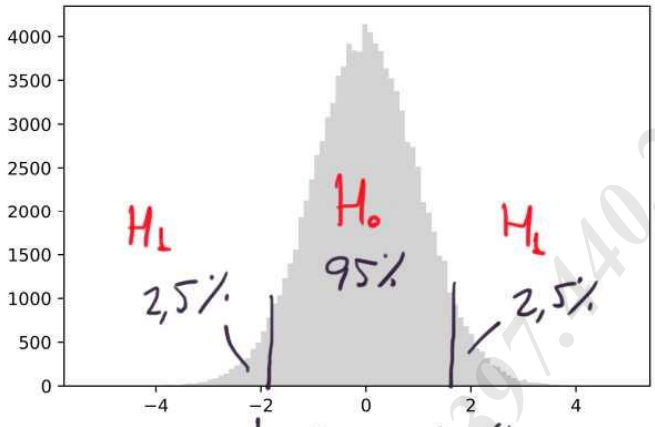


t de Student

(William Gosset)

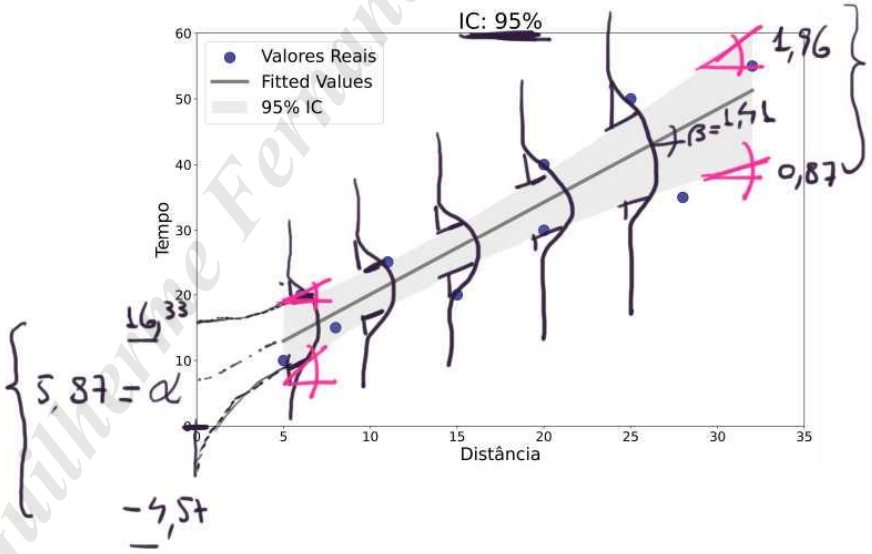
$t^2 = F$

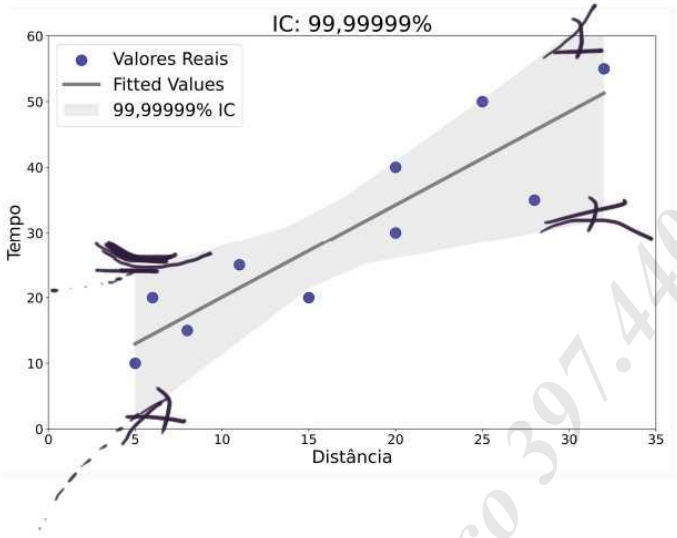
(reg. simples)



H_0: p-valuet > 0,05 → par. NÃO estat. significante

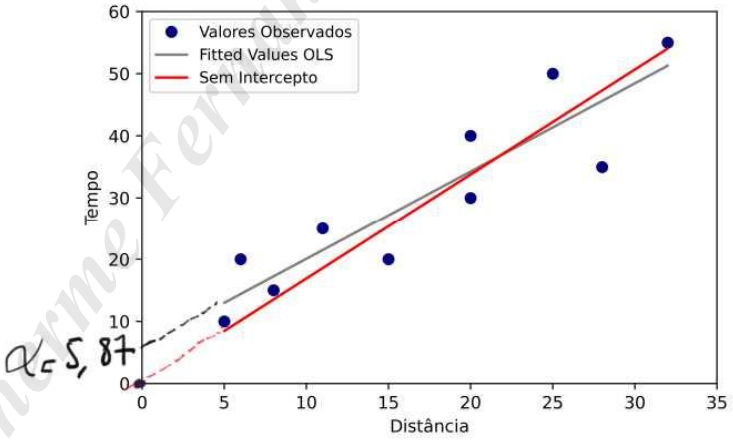
H_L: p-valuet ≤ 0,05 → par. estat. significante

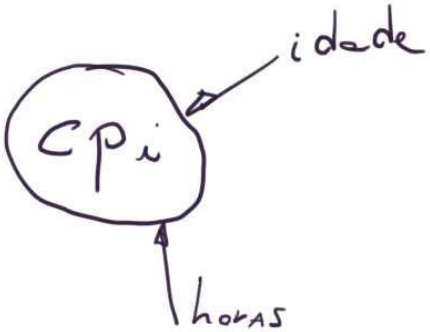




$$\sum_{i=1}^{n} \hat{u}_i = 0$$

$$\sum_{i=1}^{n} \hat{u}_i^2 = \text{mín}$$





$$\hat{cp}_i = \alpha + \beta_1 . idade_i + \beta_2 . horas_i$$

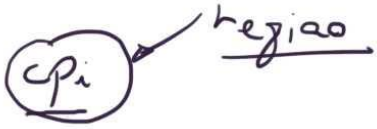
	coef	std err	t	P>|t|	[0.025	0.975]
Intercept (α)	11.9719	5.165	2.318	0.025	1.581	22.363
idade (β_1)	0.0997	0.033	3.052	0.004	0.034	0.165
horas (β_2)	-0.4013	0.135	-2.980	0.005	-0.672	-0.130

$$\hat{cp}_i = 11{,}9719 + 0{,}0997 . idade_i - 0{,}4013 . horas_i$$

$$R^2_{ajust.} = 1 - \frac{n-1}{n-1-k} \cdot \left(1 - R^2\right)$$

k = nº variáveis

$$R^2_{ajust} = 1 - \frac{50-1}{50-1-2} \cdot (1 - 0{,}324)$$



País	cpi	região
Austrália	8,7	Oceania
Canadá	8,9	AN
EUA	7,1	AN
Nova Zelândia	9,3	Oceania
Jordânia	2,0	Asia

8,0 (AN) — 9,0 (Oceania)

Dummy (Binária) Hot encoding

	D_1	D_2	
OC	0	0	ref
AN	1	0	alt1
Asia	0	1	alt2

$cpi_i = \underset{\alpha}{9,0} - \underset{\beta}{1,0}\,(D)_{2AN}$

$\begin{cases} cpi_{OC} = 9,0 - 1,0(0) = 9,0 \\ cpi_{AN} = 9,0 - 1,0(1) = 8,0 \end{cases}$

$cpi_i = 9,0 - \underset{\beta_1}{1,0}\,(D_1)_{AN} - \underset{\beta_2}{7,0}\,(D_2)_{ASIA}$