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Sesi 11 Analisis Regresi

LATIHAN

2. Lakukan prediksi Berat Badan (BB) dengan variable independen Tinggi Badan (TB), Berat Badan Tanpa Lemak (BTL) dan Asupan Kalori (AK):
    a. Hitung Sum of Square for Regression (X)
    b. Hitung Sum of Square for Residual
    c. Hitung Means Sum of Square for Regression (X)
    d. Hitung Means Sum of Square for Residual
    e. Hitung nilai F
    f. Hitung nilai r^2
    g. Tulis model regresi

BB	TB	BTL	AK
79.20	149.00	54.10	2670.00
64.00	152.00	44.30	820.00
67.00	155.70	47.80	1210.00
78.40	159.00	53.90	2678.00
66.00	163.30	47.50	1210.00
63.00	166.00	43.00	815.00
65.90	169.00	47.10	1200.00
63.10	172.00	44.00	1180.00
73.20	174.50	44.10	1850.00
66.50	176.10	48.30	1260.00
61.90	176.50	43.50	1170.00
72.50	179.00	43.30	1852.00
101.10	182.00	66.40	1790.00
66.20	170.40	47.50	1250.00
99.90	184.90	66.00	1889.00
63.00	169.00	44.00	915.00

Regression

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Asupan Kalori, Tinggi Badan, Berat Tanpa Lemak[a]	.	Enter

a. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.969[a]	.939	.923	3.42325

a. Predictors: (Constant), Asupan Kalori, Tinggi Badan, Berat Tanpa Lemak

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2148.331	3	716.110	61.109	.000[a]
	Residual	140.624	12	11.719		
	Total	2288.954	15			

a. Predictors: (Constant), Asupan Kalori, Tinggi Badan, Berat Tanpa Lemak

b. Dependent Variable: Berat Badan

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-33.425	14.494		-2.306	.040
	Tinggi Badan	.210	.090	.180	2.339	.037
	Berat Tanpa Lemak	1.291	.150	.785	8.628	.000
	Asupan Kalori	.004	.002	.208	2.374	.035

a. Dependent Variable: Berat Badan

a. Sum of Square Total adalah

$$SSY = \sum_{i=1}^{n} \left(Yi - \hat{Y}i\right)^2 = 2288.954$$

b. Sum of Square Residual adalah

$$SSE = \sum_{i=1}^{n} \left(Yi - \hat{Y}i\right)^2 = 140.624$$

c. Sum of Square Regression adalah SSY – SSE = 2288.954 – 140.624 = 2148.331

d. Mean Sum of Square Regression = SSRegr / df = 2148.331 / 3 = 716.110

e. Mean Sum of Square Residual = SSResd / df = 140.624 / 12 = 11.719

f. F = MS-Regr / MS-Resd = 716.110 / 11.719 = 61.109

Nilai F tabel dengan nomerator 3 dan denomerator 12 adalah 3.49
Nilai F_h = 61.109 > F_t = 3.49, nilai p < 0.05 sangat bermakna, artinya hipotesa nol ditolak, dinyatakan bahwa: Tinggi Badan, Berat Badan Tanpa Lemak dan Asupan Kalori memengaruhi Berat Badan

g. Nilai r^2

$$r^2 = \frac{SSY - SSE}{SSY}$$

$$r^2 = \frac{2288.954 - 140.624}{2288.954} = 0.939$$

h. Model Regresi Ganda