

Regresi Linear

1. Persamaan Regresi

Rumus yang digunakan

$$\begin{aligned}
 a &= \frac{(\sum Y_i)(\sum X_i^2) - (\sum X_i)(\sum X_i Y_i)}{n \sum X_i^2 - (\sum X_i)^2} \\
 &= \frac{(\dots\dots\dots) (\dots\dots\dots) - (\dots\dots\dots) (\dots\dots\dots)}{\dots\dots\dots - (\dots\dots\dots)^2} \\
 &= \frac{\dots\dots\dots}{\dots\dots\dots} \\
 &= \dots\dots\dots \\
 &= \dots\dots\dots
 \end{aligned}$$

$$\begin{aligned}
 b &= \frac{n \sum X_i Y_i - (\sum X_i)(\sum Y_i)}{n \sum X_i^2 - (\sum X_i)^2} \\
 &= \frac{\dots\dots\dots - (\dots\dots\dots) (\dots\dots\dots)}{\dots\dots\dots - (\dots\dots\dots)^2} \\
 &= \frac{\dots\dots\dots}{\dots\dots\dots} \\
 &= \dots\dots\dots \\
 &= \dots\dots\dots
 \end{aligned}$$

Jadi, persamaan regresinya adalah sebagai berikut:

$$\begin{aligned}
 y &= a + b x \\
 &= \dots\dots\dots + \dots\dots\dots x
 \end{aligned}$$

2. Uji Korelasi

Rumus yang Digunakan

$$\begin{aligned}
 r &= \frac{(n \sum X_i Y_i) - (\sum X_i)(\sum Y_i)}{\sqrt{n \sum X_i^2 - (\sum X_i)^2} \times \sqrt{n \sum Y_i^2 - (\sum Y_i)^2}} \\
 &= \frac{(\dots\dots\dots) - (\dots\dots\dots) (\dots\dots\dots)}{\sqrt{\dots\dots\dots} \times \sqrt{\dots\dots\dots}} \\
 &= \frac{\dots\dots\dots}{\dots\dots\dots} \\
 &= \dots\dots\dots \\
 &= \dots\dots\dots
 \end{aligned}$$

3. Koefisien Determinasi

$$r^2 = \left(\dots\dots\dots \right)^2 \times \dots\dots\dots = \dots\dots\dots \times 100\% = \dots\dots\dots$$

Hal ini berarti besarnya tingkat kesukaan konsumen yogurt, ditentukan oleh massa gula yang ditambahkan, sedangkan sisanya ditentukan oleh faktor lain.