

Data Science and A.I. Lecture Series

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Find out Pearson's Coefficient while Moment about an Arbitrary Point is given

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- Question

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- Step 2: Calculate the third moment about the mean

$$\begin{aligned}\mu_3 &= \mu'_3 - 3\mu'_2\mu'_1 + 2\mu_1'^3 \\ &= 20 - 3 \cdot 10 \cdot 1 + 2(1)^3 = -8\end{aligned}$$

Moments about the Mean

- **Step 3: Calculate the fourth moment about the mean**

$$\begin{aligned}\mu_4 &= \mu_4' - 4\mu_3'\mu_1' + 6\mu_2'\mu_1'^2 - 3\mu_1'^4 \\ &= 25 - 4 \cdot 20 \cdot 1 + 6 \cdot 10 \cdot (1)^2 - 3 \cdot (1)^4 = 2\end{aligned}$$

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- **Step 5: Calculate Kurtosis (β_2)**

$$\begin{aligned}\beta_2 &= \frac{\mu_4}{\mu_2^2} \\ &= \frac{2}{81} \approx 0.0247\end{aligned}$$