Moment - Averages of the dataset, of different orders and centred at different points

- Moments are represented by the letter μ
- **$\mu`_1$ First Moment -** The average of your samples (*average **linear** distance from 0*)
- **$\mu`_2$ Second (Crude/Raw) Moment -** Squared average (*average **squared distance from 0***)
    - **Differentiates between datasets with different spreads** but the same first moment
        - *High numbers inflate the second moment more than low numbers deflate*
            - A dataset with the same average but **higher spread** will have a **larger crude** moment
- **μ_2 Second (Centred) Moment -** A squared average distance from the linear average
    - This means we have shifted the dataset so that **the first moment is 0**
    - This is also known as the **variance** (*average squared distance from average*)
    - The square root of this is the **standard deviation** (*average distance from average value*)
- ***Crude/raw moments* -** *Centered at first distance = 0*
    - *have a ` to indicate they are crude, whereas centred moments don't*
    - Crude moments take distances from 0
- ***Crude/raw moments* -** *Centered from **first moment** $\mu`_1$*
    - *don't have a `*
- **Higher Order Moments -** moments that are third or higher
- ***Standardised moments* -** moments that are adjusted for **first and second moment**
    - We can think of it as **normalised**
    - We **don't have to adjust for the third moment often**, because it's not included in the calculation of kurtosis (4th moment) or higher order moments
- **Adjusting moments for sampling -** when we take samples, and we apply the formulas for moments, we have to **adjust the formulas for the lower degree of freedom** as a result of taking a sample, not the whole population