VARIANCE of SAMPLE: \[ \frac{1}{n-1} \sum_{i} (x_i - \bar{x})^2 \]

COVARIANCE of SAMPLE:
\[ \frac{1}{n-1} \sum (x_i - \bar{x})(y_i - \bar{y}) \]

PEARSON CORRELATION COEFFICIENT:
\[ \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}} \]

Q: Do movies that cost more make more $$?
LINEAR MODEL

[Diagram of a linear model with an input layer, an output layer, and error vectors connecting them.]