

Calculating a Covariance Between Two Variables, x and y

Observation	x	y
1	1.2	1.4
2	0.5	0.7
3	2.3	2.1

$$Cov[x, y] = \frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})$$

$$Cov[x, y] = \frac{(1.2 - 1.3)(1.4 - 1.4) + (0.5 - 1.3)(0.7 - 1.4) + (2.3 - 1.3)(2.1 - 1.4)}{n}$$

$$Cov[x, y] = \frac{(-0.1)(0) + (-0.8)(-0.7) + (1.0)(0.7)}{n} = \frac{1.26}{3} = 0.4$$