Regression

```
> ### Descriptive Statistics

> (CorrelationData) |> describeMoments()

Summary Statistics for the Data

              N       M      SD     Skew    Kurt
Outcome1  4.000   2.000   2.449   0.544  -2.944
Outcome2  4.000   6.000   2.449   0.544  -2.944

> (CorrelationData) |> describeCovariances()

Covariances for the Data

         Outcome1 Outcome2
Outcome1    6.000    3.000
Outcome2    3.000    6.000

> ### Inferential Statistics

> (CorrelationData) |> estimateModel()

Proportion of Variance Accounted For by the Regression Mo

          Est      LL      UL
Model   0.250   0.000   0.606

> (CorrelationData) |> testCoefficients()

Hypothesis Tests for the Regression Coefficients

               Est      SE       t       p
(Intercept)  5.000   1.785   2.801   0.107
Outcome1     0.500   0.612   0.816   0.500
```

These statistics were obtained using the "Descriptives" command described on the previous page of this guide. Note that they are calculated separately for each variable.

The Covariance ("COV") is not determinable from the summary statistics provided, but rather the data. Therefore, the calculations for it are not shown here.

"R" is a function of the covariance and the standard deviations of both variables:

$$R = \frac{COV}{(SD_X)(SD_Y)} = \frac{3.000}{(2.45)(2.45)} = 0.500$$

$$R^2 = 0.500^2 = 0.250$$

The Unstandardized Regression Coefficients ("Estimate") are also a function of the Covariance and the descriptive statistics:

$$B_1 = \frac{COV}{(SD_X)^2} = \frac{3.000}{(2.449)^2} = 0.500$$

$$B_0 = M_Y - (B_1)(M_X) = 6.000 - (0.500)(2.000) = 5.000$$

The Standardized Regression Coefficient for the predictor can be similarly determined:

$$\beta_1 = B_1\left(\frac{SD_X}{SD_Y}\right) = 0.500\left(\frac{2.449}{2.449}\right) = 0.500$$