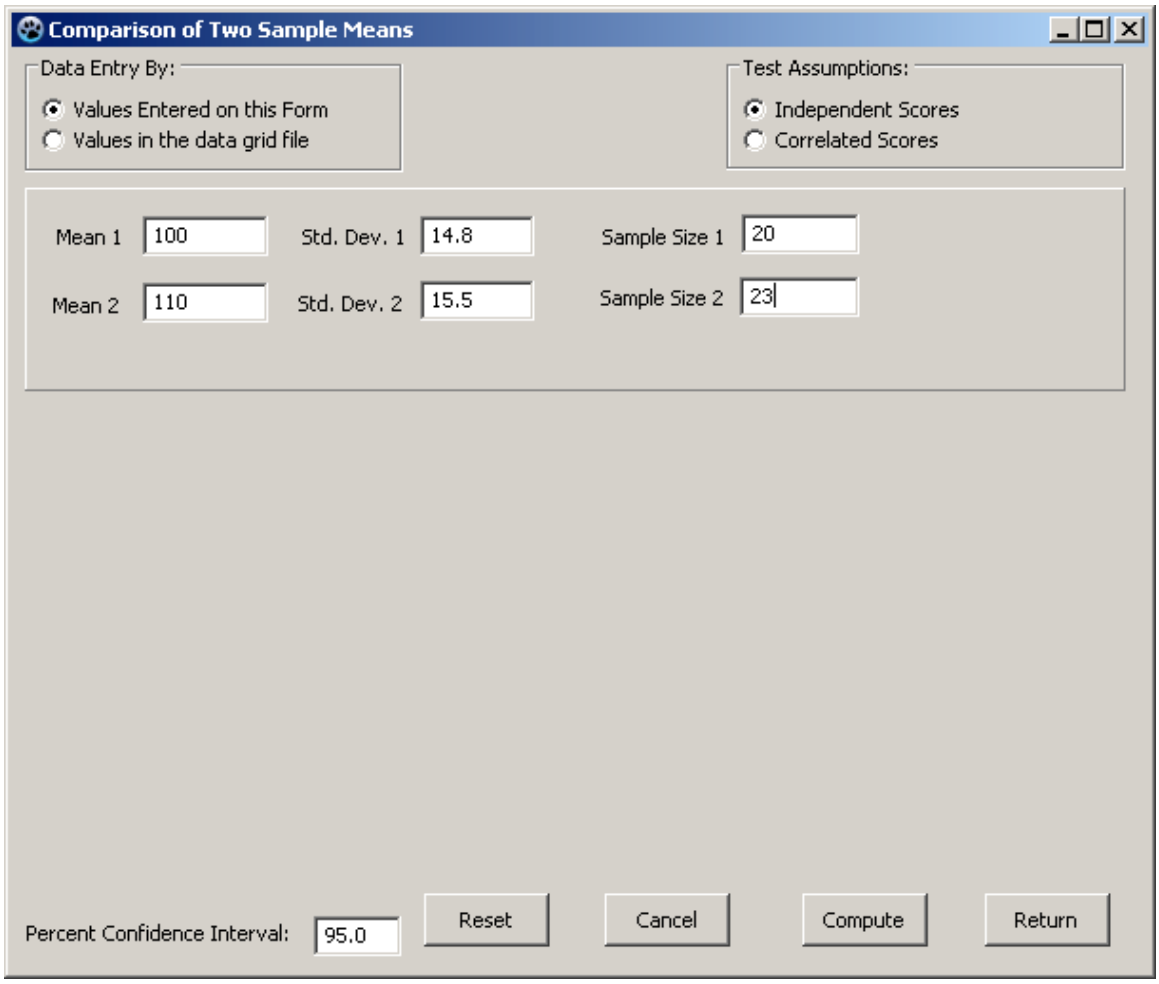
Tests for Two Means

t-Tests

Among the comparison techniques the "Student" t-test is one of the most commonly employed. One may test hypotheses regarding the difference between population means for independent or dependent samples which meet or do not meet the assumptions of homogeneity of variance. To complete a t-test, select the t-test option from the Comparisons sub-menu of the Statistics menu. As an example we have entered sample data on the form below which reflects a test of difference between two groups that have taken a standardized intelligence test. You will see the form below:



When you click the Compute button you would obtain the following results:

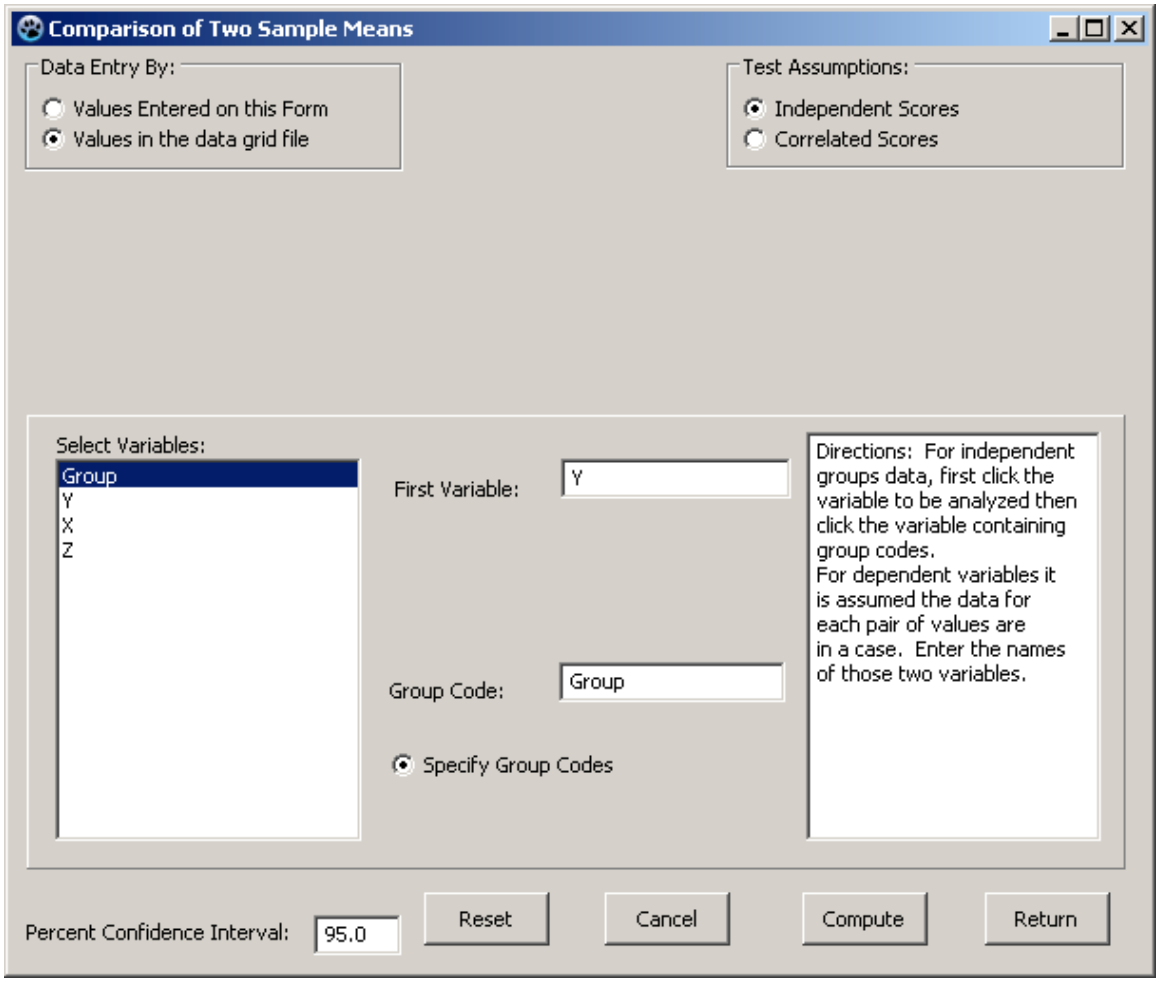
COMPARISON OF TWO MEANS

Variable	Mean	Variance	Std.Dev.	S.E.Mean	N
Group 1	100.00	219.04	14.80	3.31	20
Group 2	110.00	240.25	15.50	3.23	23

Assuming = variances, t = -2.155 with probability = 0.0371 and 41 degrees of freedom
Difference = -10.00 and Standard Error of difference = 4.64
Confidence interval = (-19.37, -0.63)

Assuming unequal variances, t = -2.162 with probability = 0.0372 and 40.62 degrees of freedom
Difference = -10.00 and Standard Error of difference = 4.63
Confidence interval = (-19.34, -0.66)
F test for equal variances = 1.097, Probability = 0.4227

Notice that you can enter values directly on the form or from a file read into the data grid. If you elect to read data from the data grid by clicking the button corresponding to "Values Computed from the Data Grid" you will see that the form is modified as shown. We have entered data from the ANOVA.LAZ file:



The results obtained when we click the Compute button are:

COMPARISON OF TWO MEANS

Variable	Mean	Variance	Std.Dev.	S.E.Mean	N
Group 1	15.80	5.51	2.35	0.74	10
Group 2	17.90	9.66	3.11	0.98	10

Assuming = variances, t = -1.705 with probability = 0.1054 and 18 degrees of freedom
Difference = -2.10 and Standard Error of difference = 1.23
Confidence interval = (-4.69, 0.49)
Assuming unequal variances, t = -1.705 with probability = 0.1066 and 16.75 degrees of freedom
Difference = -2.10 and Standard Error of difference = 1.23
Confidence interval = (-4.70, 0.50)
F test for equal variances = 1.752, Probability = 0.2081