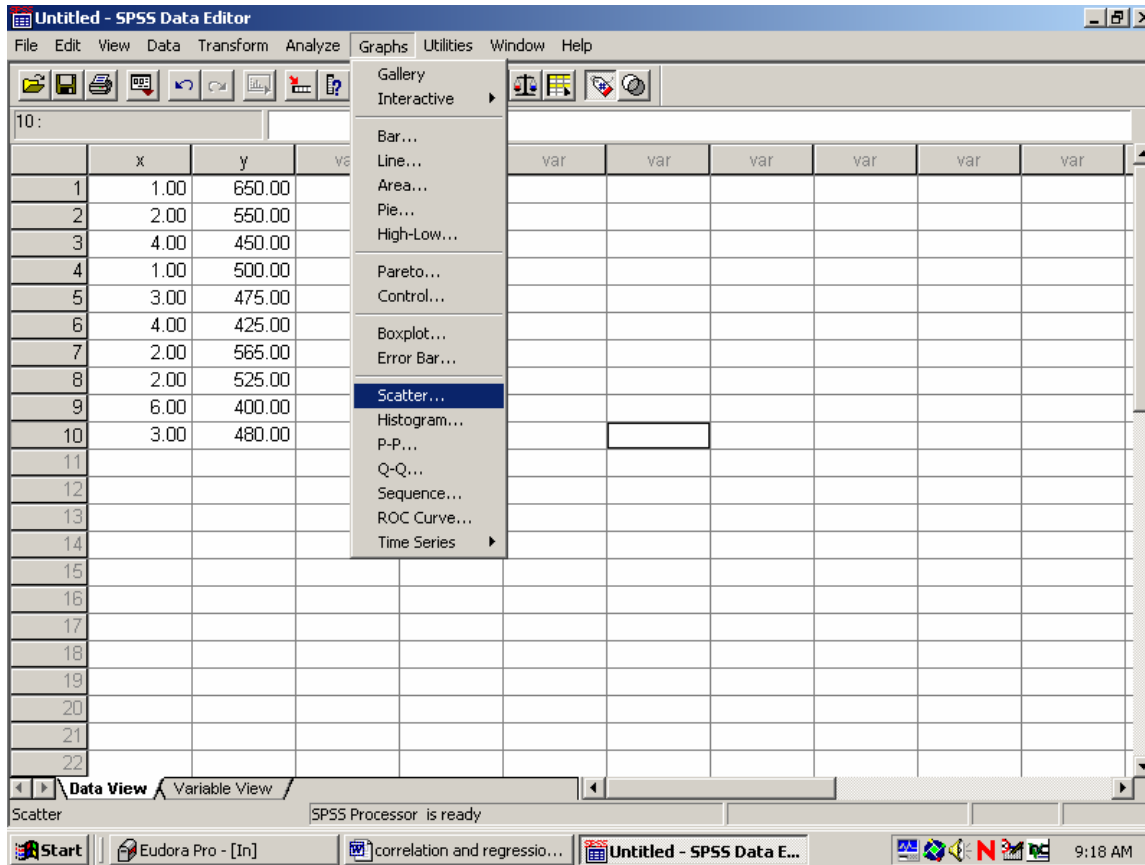


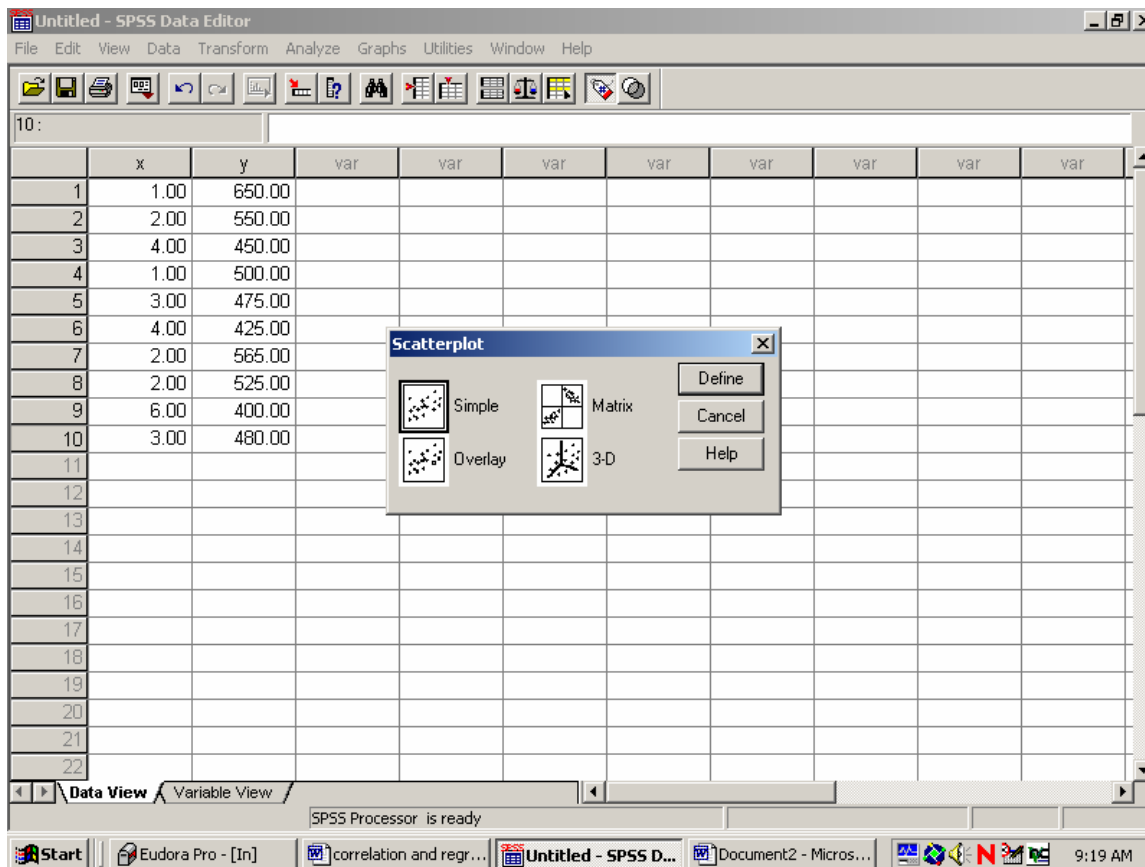
## Tutorial for Basic Correlation/Regression Analysis in SPSS 10.0

1) Prior to entering your data on the Data Editor screen (shown below), you must define your variables on the Variable View screen (not shown). Once your variables have defined your variables (X as your predictor and Y as your criterion), enter the data as shown below on the Data Editor screen. Start your analysis by creating a scatter plot.

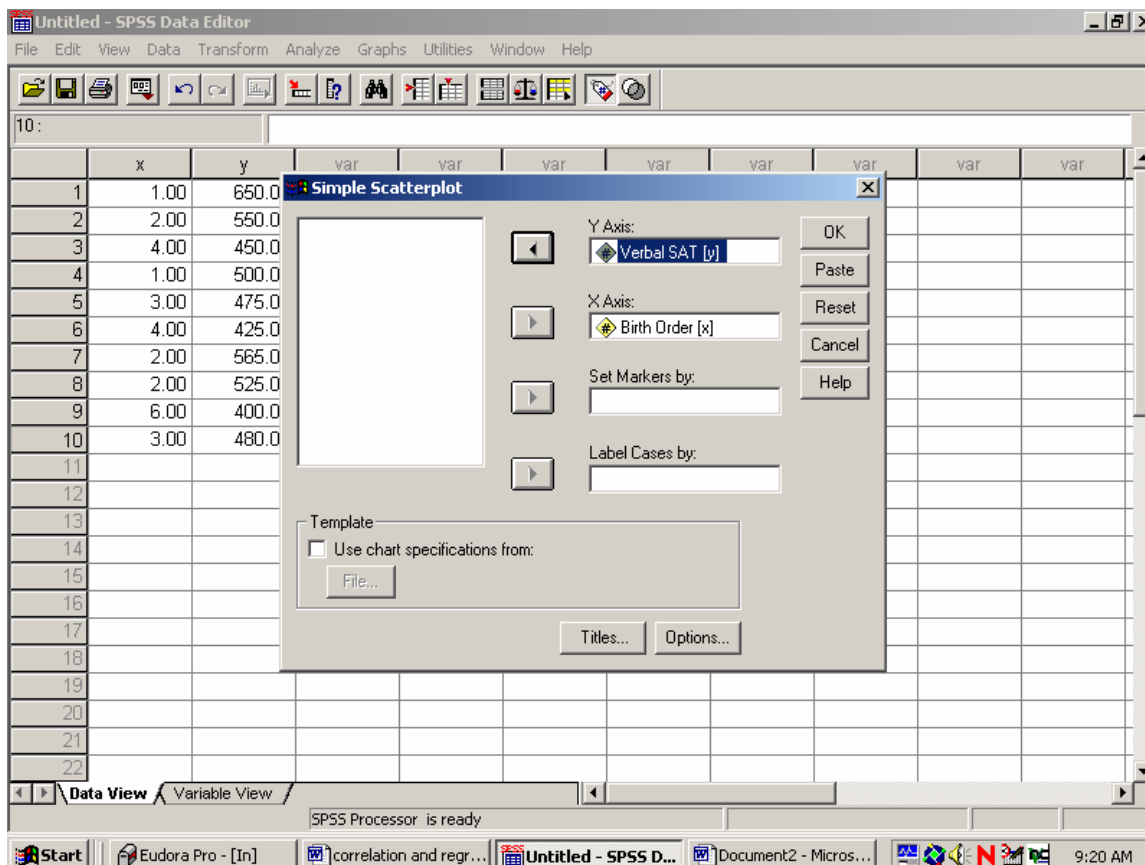


2) After clicking on Graphs and selecting Scatter, you will be given the option to select the type of plot- shown on the next page.

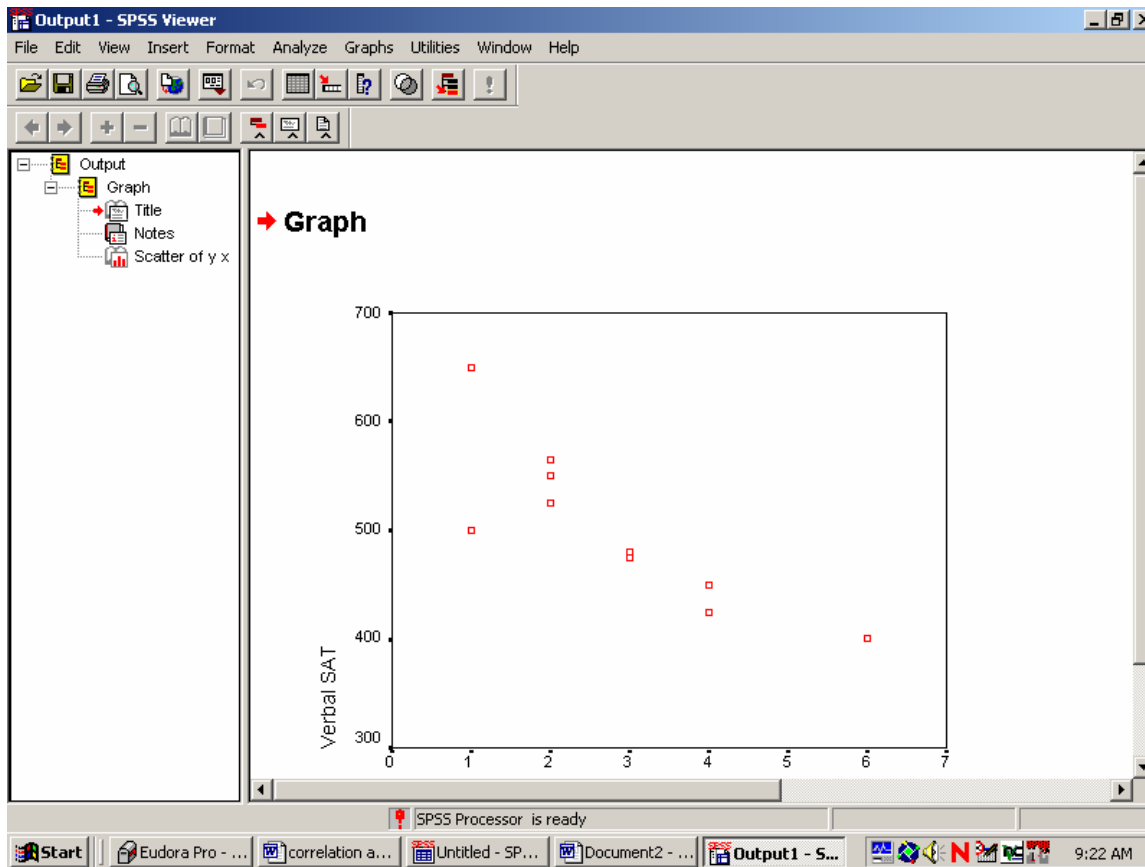
3) Highlight the Simple scatterplot option and click on Define



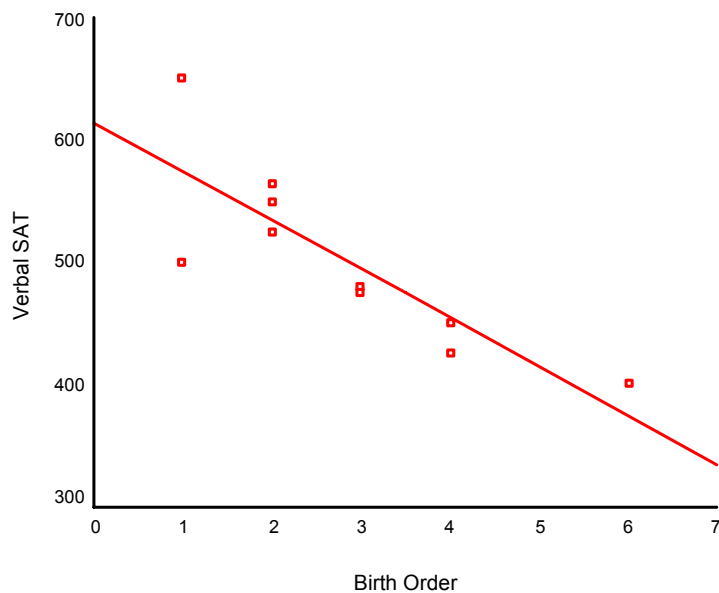
4) After the Simple Scatterplot window appears, move your criterion variable into the Y axis slot and your predictor variable into the X axis slot (shown below). Click on OK.



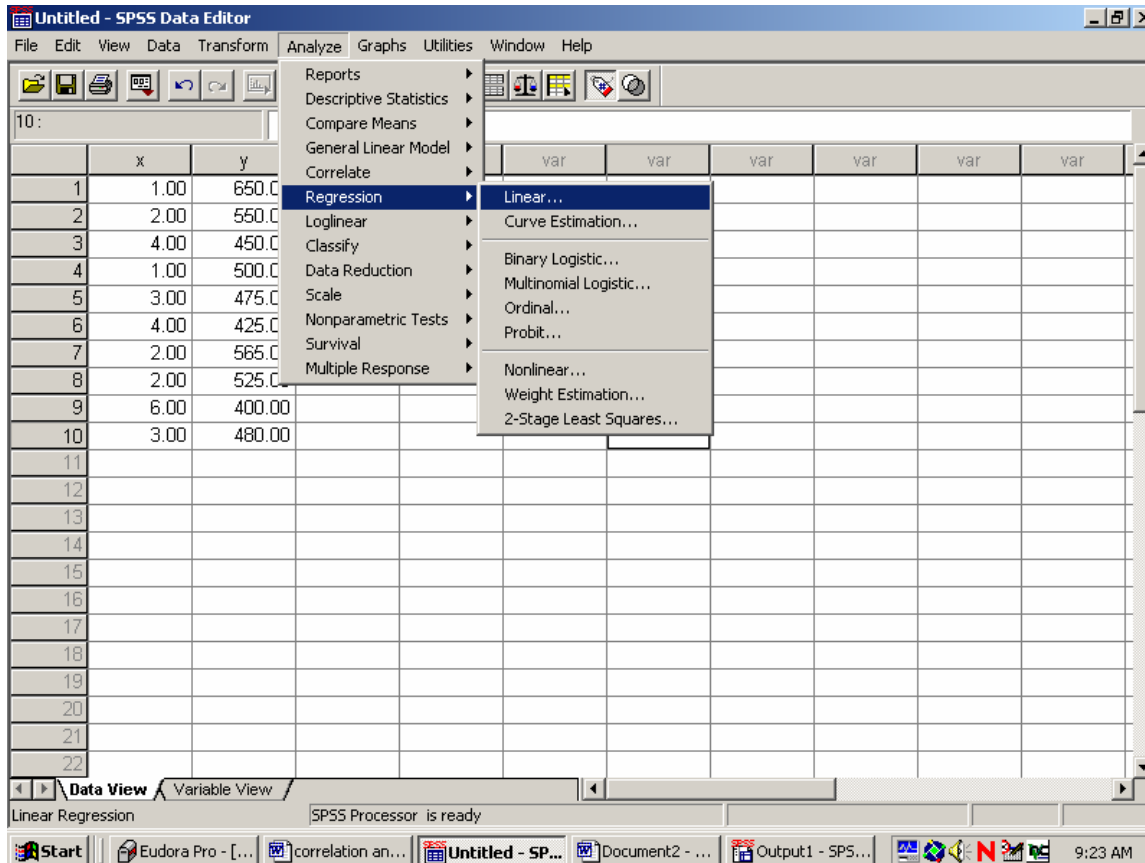
5) The scatter plot will be produced and displayed on the Output Viewer. You may edit the scatter plot in the same manner as you edit other graphs.



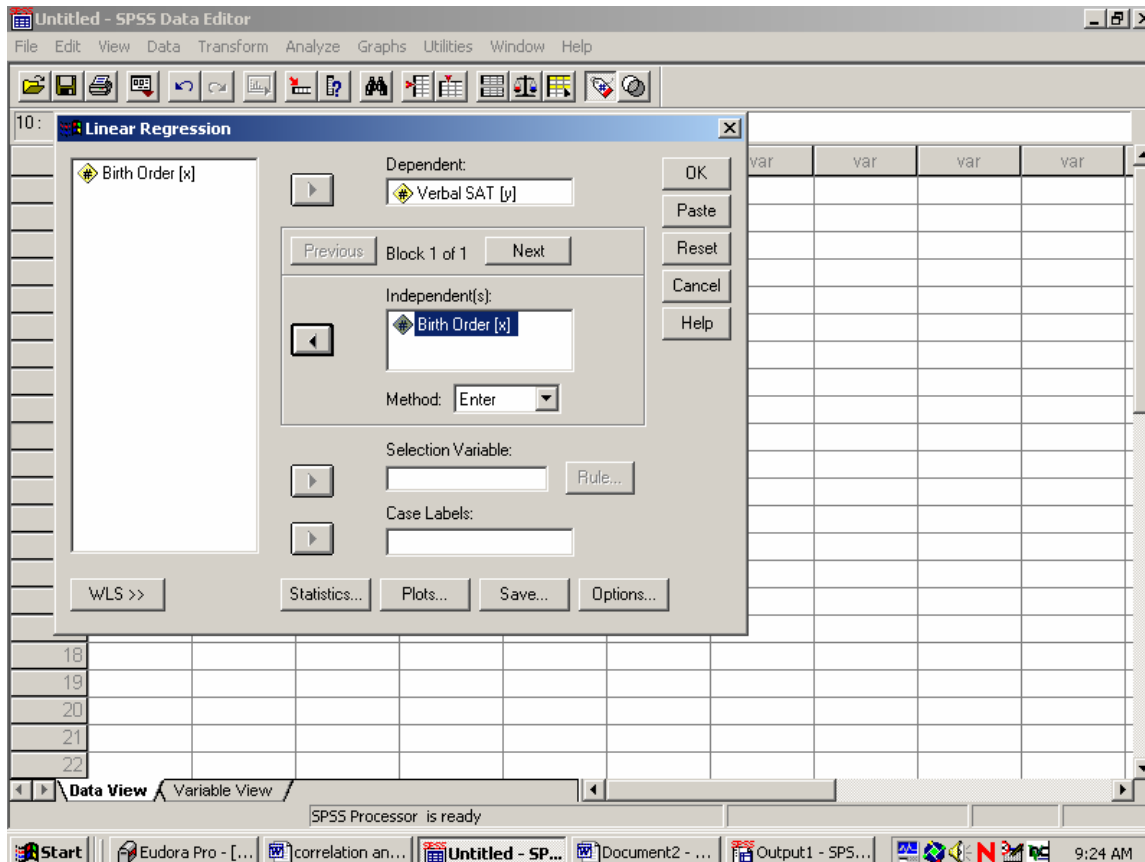
Your edited scatterplot may look like this.



6) After creating a scatter plot, you should run a regression analysis. The regression analysis will produce regression coefficients, a correlation coefficient, and an ANOVA table. Begin by selecting Analyze, Regression, and Linear (shown below).



7) Once the Linear Regression window appears (shown below), move your criterion variable into the Dependent slot and your predictor variable into the Independent slot. Click OK.



8) The output of the analysis is shown below. The Model Summary table reports the correlation coefficient as R (note it should be a lower case r for bivariate correlation, but it isn't). The R Square statistic is in the second column and is also known as “proportionate reduction in error” or “variance accounted for.”

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.837 <sup>a</sup>	.701	.664	42.7779

a. Predictors: (Constant), Birth Order

The second table is the ANOVA summary table that tests the null hypothesis. In the case of correlation the null hypothesis is that the correlation is zero. In this case we reject the null hypothesis because the *p* value is less than .05. In this case the *p* value is .003.

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34320.417	1	34320.417	18.755	.003 <sup>a</sup>
	Residual	14639.583	8	1829.948		
	Total	48960.000	9			

a. Predictors: (Constant), Birth Order

b. Dependent Variable: Verbal SAT

The final table presents the regression coefficients. Looking at the Unstandardized Coefficients column you see B weights. The B weight (613.611) in the Constant row is referred to as the *intercept*. The B weight (-39.861) in the predictor row (Birth Order) is referred to as the *slope*. Note that the correlation will be negative when the slope has a negative value. These coefficients are used to form the following *linear regression equation*.

$$y' = 613.61 + (-)39.86x$$

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	613.611	29.107		21.081	.000
	Birth Order	-39.861	9.204	-.837	-4.331	.003

a. Dependent Variable: Verbal SAT

The APA Results for this analysis could be written as follows.

### Results

A bivariate correlation and regression analysis was conducted using birth order as a predictor of verbal SAT score. The model revealed that birth order accounts for 70 percent of the variance in verbal SAT scores with a Pearson  $r = .84$ ,  $F(1, 8) = 18.76$ ,  $p = .003$ . The resulting linear regression equation is  $y' = 613.61 + (-)39.86x$ .