One of the uses of statistics is to show a statistical correlation between two variables. For example, we know there is a connection between smoking and heart disease, a connection between education and income, a connection between age and cost of car insurance, etc..

For this project you are to choose two quantitative variables between which you believe there is a statistical connection. You cannot use qualitative variables (why?) and you should avoid discrete quantitative variables (why?). Gather data for your variables, analyze your data, summarize your findings, and give a short (5 minute) presentation of your findings to the class. Your group will also turn in your final write up on the day of the presentations. See our course schedule for the date of the presentations.

You will be expected to work in groups of 3 people. If you insist on working individually, you will be penalized 20%.

Part One: Your Proposal...

This proposal should be submitted to me as soon as possible. I will review your proposal and return it promptly. Getting your proposal approved by me is the hardest part of this project (and there’s a good reason for this). If your group cannot come up with a viable project, the points for this project will be linked to the final exam.

Group Members: ____________________________________________________________

Describe your proposal by answering the following questions. Be specific.

1. Describe the population you propose to study. This is the group of persons, places, or things from which or about which you will obtain 2 numbers to compare.

2. What 2 quantitative variables will you compare? Be specific.

   Independent variable (x) : ____________________________________________________

   Dependent variable (y) : ____________________________________________________

3. How will you gather your information? A survey? Experiments? The Internet? The Library? For this project, you must gather at least 30 data pairs (the more the better, but don’t kill yourselves…).

4. What do you expect to find? Do you expect to find positive or negative correlation? Weak, medium, or strong?

Note: After I put my official “OK” (in red pen) on this proposal, this paper must be saved and turned in as part of your final write-up of your project
Part Two: Your Final Write Up...

Submit by:

Your final write up will be graded on the following components presented in the following order...

1. This grade sheet on top. _______/ 5 pts
2. Your original proposal (with my official “OK” in red pen in the lower right-hand corner). _______/ 10 pts
3. A paragraph describing, in reasonable detail, how you gathered your data. Sources must be cited, any surveys/questionnaires that were used must be attached, etc. This paragraph must be word-processed, not hand-written. _______/ 10 pts
4. A paragraph criticizing your data. You must identify three drawbacks and/or sources of error. This paragraph must be word-processed, not hand-written. _______/ 10 pts
5. A complete (neatly formatted) listing of the data you are using. _______/ 5 pts
6. A completed Linear Regression Information Sheet. _______/ 10 pts
7. A printout of the TI-83 screen showing the computed linear regression model, correlation coefficient, and coefficient of determination. _______/ 10 pts
8. A print out of the TI-83 screen showing your scatter plot and the graph of the regression model. _______/ 10 pts

Class Presentation:

9. We will discuss the details about the presentation in class. _______/ 20 pts
10. Attendance, attention, and courtesy for other’s presentations. _______/ 10 pts

Points Earned: _________ / 100 pts
Math 12, Elementary Statistics
Linear Regression Information Sheet

Instructor: Joseph Krause

Your population: ________________________________

Independent Variable (x): ________________________________

Dependent Variable (y): ________________________________

Regression Model*: ________________________________

State the correlation coefficient*: ________________________________

Classify the correlation coefficient: ________________________________

State the coefficient of determination*: ________________________________

In a complete sentence, interpret the coefficient of determination.

In a complete sentence, including units, explain the meaning of the slope number for your regression model. Be specific.

In a complete sentence, make a specific numeric prediction based on your regression model.

* Where appropriate, round decimals to 3 places.