SPSS & Regression

One Variable of Interest

Bar Charts can be used to show the means for a variable of your choice split by some nominal variable.

Question: Does the above statement make sense to everyone?

Open a Word file SPSSRegressionInClass_PUNetID.docx to save your results. Place each of the results and answers to the questions below in the Word document. Be sure to properly label each answer/result.

Exercise 1

There is an Excel file called "Lipid Data" in the CS130 Public -> DataFiles folder. I would like you to copy this file to your desktop.

a) Open the file in SPSS, and produce a Bar Chart showing the mean weight of the people in the file split by Gender.

b) Also make a plot of the mean Cholesterol split by Gender. These two plots really allow us to examine one variable of interest.

More than One Variable of Interest

What if we want to examine the relationship between two variables?

In statistics, we can define two types of variables:

1. Independent - "it is what it is" and nothing influences it (e.g. Gender)
2. Dependent - most likely dependent on another variable (e.g. Cholesterol may be dependent on age)

Exercise 2

Consider the following table which shows the number of bushels of wheat produced for the given rainfall amounts:

```
Rainfall    2.5 3  4.5 7.6 9.5 10.3 in inches
Bushels     37  43 42  46  48  51   of wheat
```

1. Create a scatterplot (scattergram) for this data. You need to correctly set up the data in SPSS and then graph the data correctly by deciding which variable is the dependent variable and which variable is the independent variable.

   What is the dependent variable? Why?

   What is the independent variable? Why?

Least Squares Regression is a technique used to find from the data, the equation of the best line that fits through the scattergram. In essence, we want to find a line of the form $y = mx + b$ for the given data. We have used the various regression analysis tools from Excel. Enter the above data into Excel and perform a linear regression.

2. Write down the equation and regression coefficient in the Word document.

Make sure you save your Word document to Turing!