Stat 104 – Homework 2  
Due Thursday, September 12, 2013

Reading:  
August 29 – September 5  
Chapter 2

September 10 – September 19  
Chapter 3

Assignment:

1. Complete the following problems from the text:
   
   2.3 Identify the variable type

2.15 Super Bowl tickets

2.21 Histogram for sugar
2.33 Income and race

2.47 Sick leave

2.48 Life expectancy

2.79 Female heights
2. When hogs are processed into pork products an important initial measurement is the hot carcass weight in pounds. Below are data on the hot carcass weight (HCWgt) for a random sample of 53 hogs selected at a processing plant in Iowa.

205, 203, 207, 167, 214, 214, 197, 192, 217, 200, 211, 192, 176, 182
191, 198, 197, 201, 188, 173, 203, 184, 223, 203, 205, 219, 170, 161
194, 190, 222, 229, 195, 213, 211, 225, 207, 220, 183, 231, 252, 198,
196, 185, 214, 180, 219, 201, 207, 185, 186, 189, 212

On the back of this sheet is JMP output for the analysis of these data.

a) Answer the question: Who are we collecting data on?

b) Answer the question: What data are being collected? What kind of variable is this? If it is a categorical variable give the categories, if it is a quantitative variable give the units of measurement.

c) Describe the shape of the histogram produced by JMP.

d) Report the values for a five number summary. Use these values to compute the range and the interquartile range (IQR). Be sure to include appropriate units of measurement.

e) According to the box plot are there any hot carcass weights that are considered outliers? Explain briefly. If there are outliers, give the hot carcass weights.

f) Report the values of the sample mean and sample standard deviation. Again, include appropriate units of measurement.
g) Which summary is more appropriate for these data: the median and the IQR or the sample mean and sample standard deviation? Support your choice statistically.

h) The processing plant would like hot carcass weights of 200 pounds or more. Is the processing plant meeting this goal? Support your answer statistically.

3. For this assignment you are given the JMP output. For future assignments you will need to be able to use JMP to produce output. Take this opportunity to practice with JMP. Enter the data into a single column, labeled Hot Carcass Weight, in a JMP data table. Use Analyze – Distribution to reproduce the graphical and numerical summaries. Does your output match what appears on the next page?

**Distribution of Hot Carcass Weight**

<table>
<thead>
<tr>
<th>Quantiles</th>
<th>Summary Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.0% maximum</td>
<td>252.0 Mean 200.7</td>
</tr>
<tr>
<td>75.0% quartile</td>
<td>213.5 Std Dev 17.71</td>
</tr>
<tr>
<td>50.0% median</td>
<td>201.0 N 53</td>
</tr>
<tr>
<td>25.0% quartile</td>
<td>188.5</td>
</tr>
<tr>
<td>0.0% minimum</td>
<td>161.0</td>
</tr>
</tbody>
</table>