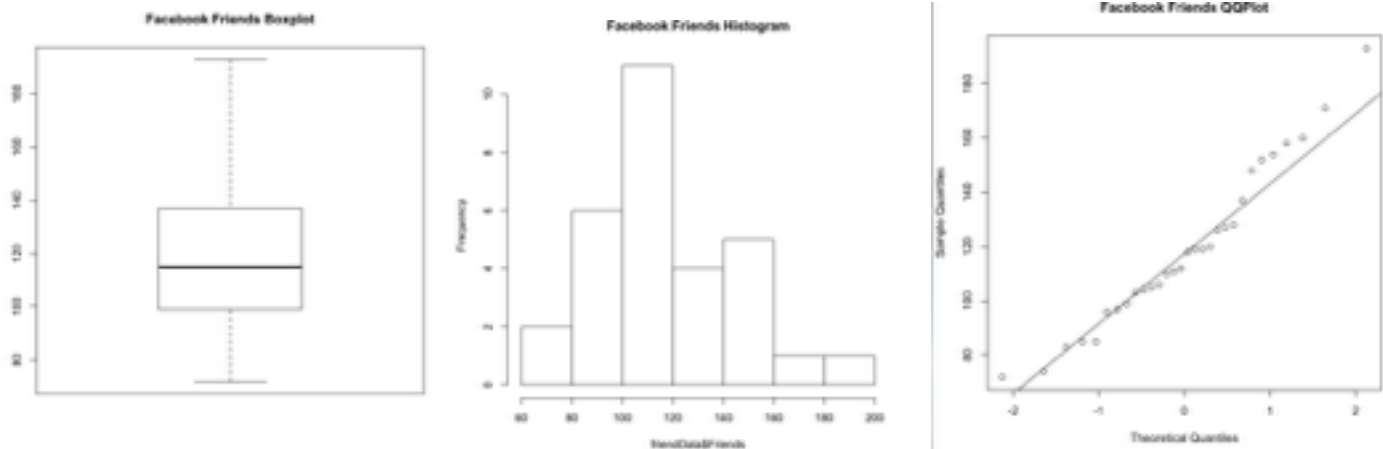Harris Christiansen
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STAT350 - Lab 5
2015-03-26

A. Note: All code can be found in appendix
  1. By looking at the boxplot, histogram, and qqplot, it appears that the data is normally distributed.

  2. **TODO**

  3. Mean = 119.0667, SD = 29.56691, Standard Error = 5.398155, Margin Of Error = 0.05212

  4. Results:
     data: friendData$Friends
     t = -2.0254, df = 29, p-value = 0.05212
     alternative hypothesis: true mean is not equal to 130
     95 percent confidence interval:
      108.0262 130.1071
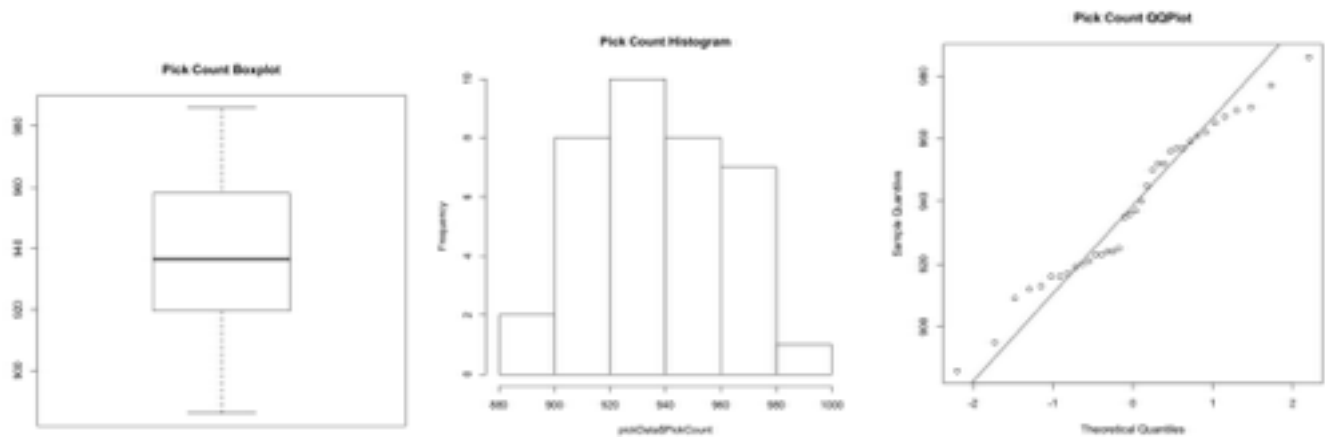   sample estimates:
     mean of x
      119.0667

  5. The sample data is just barely consistent with the given mean of 130.

B. Pick Count
   1. Boxplot, Histogram, and QQPlot

   2. The data forms a normal-ish shape, but is right skewed and much more evenly spread than normal data.

   3. The data still forms a normal enough shape that it should be able to be analyzed with a t-test.

   4. mean = 938.2222, SD = 24.2971, Standard Error = 4.049517

   5. data: pickData$PickCount
      t = 199.5848, df = 35, p-value < 2.2e-16
      alternative hypothesis: true mean is greater than 130
      95 percent confidence interval:
       931.3803   Inf
      sample estimates:
      mean of x
       938.2222

   6. u is the population mean pick count
      H_0: u=925
      H_a: u<925
      t_t = 199.5848
      DF = 35
      P-Value = 0

      Conclusion:
      a = 1 - 0.05 = 0.95
      Reject H_0

   7. u is the population mean pick count
      H_0: u=935
      H_a: u<935
      t_t = 199.5848

DF = 35

P-Value = 0

Conclusion:

a = 1 - 0.05 = 0.95

Reject H_0

8. The results are conclusive that too much of the data is less than the desired amount.

Appendix:

```r
##### Problem A #####
friendData <- read.table(file="facebookfriends.txt",header=T)

##### Part 1 #####
boxplot(friendData$Friends,main="Facebook Friends Boxplot") #Boxplot
hist(friendData$Friends,main="Facebook Friends Histogram") # Histogram
# QQplot
qqnorm(friendData$Friends,main="Facebook Friends QQPlot")
qqline(friendData$Friends)

##### Part 3 #####
mean(friendData$Friends) # Mean
sd(friendData$Friends) # SD
sd(friendData$Friends)/sqrt(length(friendData$Friends)) # Standard Error

##### Part 4 #####
t.test(friendData$Friends, conf.level=0.95, mu = 130)

##### Problem B #####
pickData <- read.table(file="pickcount.txt",header=T)

##### Part 1 #####
boxplot(pickData$PickCount,main="Pick Count Boxplot") #Boxplot
hist(pickData$PickCount,main="Pick Count Histogram") # Histogram
# QQplot
qqnorm(pickData$PickCount,main="Pick Count QQPlot")
qqline(pickData$PickCount)

##### Part 4 #####
mean(pickData$PickCount) # Mean
sd(pickData$PickCount) # SD
sd(pickData$PickCount)/sqrt(length(pickData$PickCount)) # Standard Error

##### Part 5 #####
```

```r
t.test(pickData$PickCount, conf.level=0.95, mu = 130, alternative="greater")
```