**t-Test of Pearson's Linear Correlation Coefficient**

(Table 6.4 in the Textbook & page 324)

1. First we enter the data into the variables *sent* (cards sent) and *rec* (cards received):
   ```
   > sent=c(13,9,7,5,1)
   > rec=c(14,18,12,10,6)
   ```

2. Type in the variable names to make sure we stored all the numbers properly:
   ```
   > sent
   [1] 13  9  7  5  1
   > rec
   [1] 14 18 12 10  6
   ```

3. The function we'll be using is *t.test*. To get instructions on how to use it type:
   ```
   > ?cor.test
   ```

4. Let's do a lower tailed test. Notice that the lower bound of the confidence intervals is maximally negative because of the tail of the test. For your project, you don't need to report confidence intervals for *r* because we didn't go over how to do that by hand. Note that the value of Pearson's *r* (0.8) is at the bottom of the test results.
   ```
   > cor.test(sent,rec,alternative="less",method="pearson")
   ```

   Pearson's product-moment correlation
   ```
   data:  sent and rec
t = 2.3094, df = 3, p-value = 0.948
alternative hypothesis: true correlation is less than 0
95 percent confidence interval:
-1.0000000  0.9785289
sample estimates:
cor
0.8
   ```

5. Let's do a two tailed test. Notice that the confidence intervals now have non-maximal upper and lower bounds. For your project, you don't need to report confidence intervals for *r* because we didn't go over how to do that by hand. Note that the value of Pearson's *r* (0.8) is at the bottom of the test results.
   ```
   > cor.test(sent,rec,alternative="two.sided",method="pearson")
   ```

   Pearson's product-moment correlation
   ```
   data:  sent and rec
t = 2.3094, df = 3, p-value = 0.1041
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
-0.2796400  0.9861962
sample estimates:
   ```
6. Let's do an upper tailed test. Notice that the upper bound of the confidence intervals is maximally positive because of the tail of the test. For your project, you don't need to report confidence intervals for $r$ because we didn't go over how to do that by hand. Note that the value of Pearson's $r$ (0.8) is at the bottom of the test results.

> cor.test(sent, rec, alternative = "greater", method = "pearson")

```
Pearson's product-moment correlation

data:  sent and rec
t = 2.3094, df = 3, p-value = 0.05204
alternative hypothesis: true correlation is greater than 0
95 percent confidence interval:
 -0.06438567  1.00000000
sample estimates:
cor
0.8
```

7. To make a crude scatter plot of the data type:

> plot(sent, rec)