R Homework Number 6

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November 1st, 2018

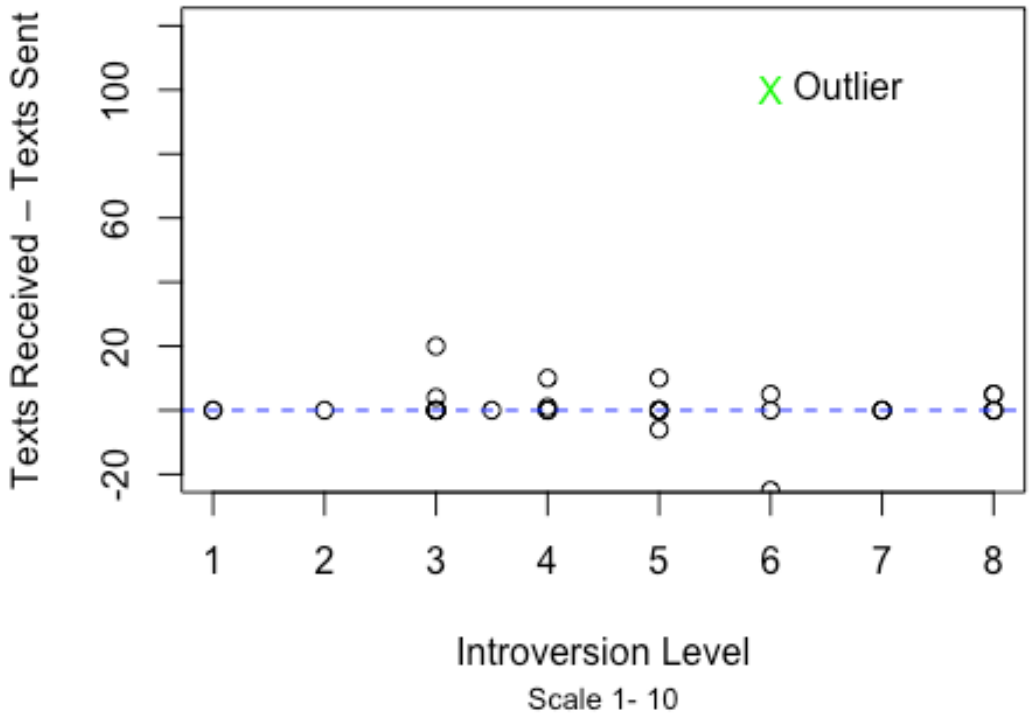
Statistics 5193

*Note: this document was created using R Markdown.

Question 1

```
library(readxl)
StudentData <- read_excel("~/Downloads/StudentData.xlsx")

StudentDataNoOut <- StudentData[-28,]
StudentDataOut <- StudentData[28,]

plot(StudentDataNoOut$TxtRec
    - StudentDataNoOut$TxtSent
    ~ StudentDataNoOut$Introvert,
    ylab = "Texts Received – Texts Sent",
    xlab = "Introversion Level",
    ylim = c(-20, 120))

title(main = "Texting vs. Introversion",
      cex.main = 2,
      font.main = 4,
      col.main = 'red')

title(sub = "Scale 1- 10",
      cex.sub = .8)

lines(abline(h = 0,
             col = 'blue',
             lty = 2))

points(StudentDataOut$TxtRec
       - StudentDataOut$TxtSent
       ~ StudentDataOut$Introvert,
       pch = "X", col = 'green')

text(StudentDataOut$TxtRec
     - StudentDataOut$TxtSent
     ~ StudentDataOut$Introvert,
     label = 'Outlier',
     pos=4)
```

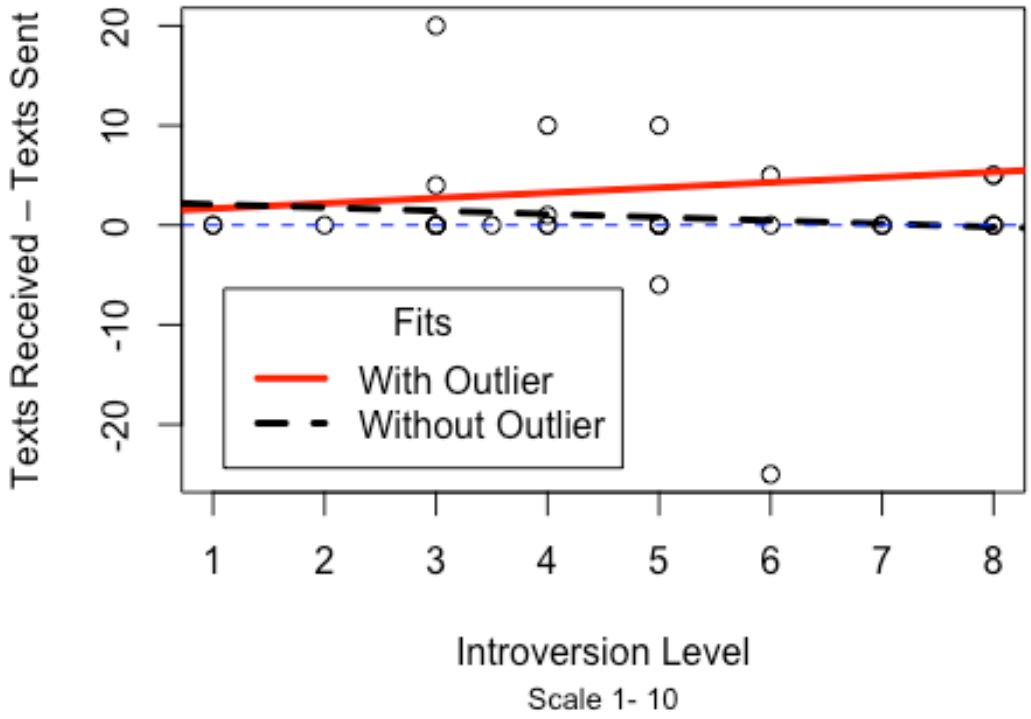
Texting vs. Introversion



Question 2

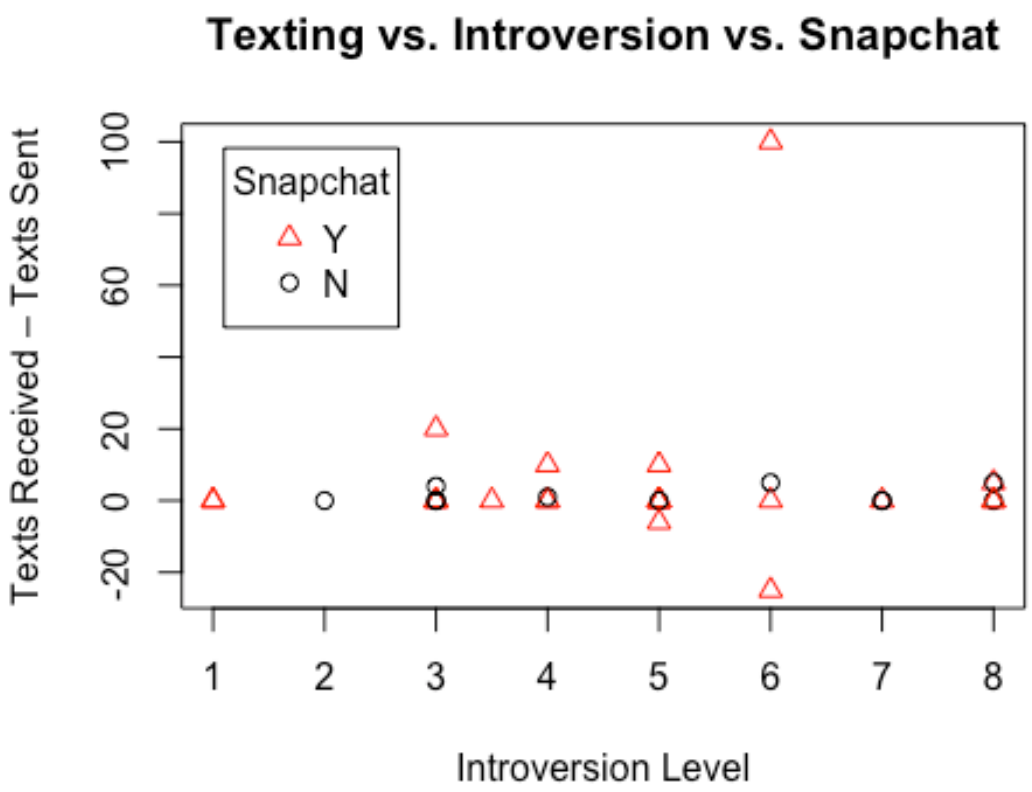
```
plot(StudentDataNoOut$TxtRec
    - StudentDataNoOut$TxtSent
    ~ StudentDataNoOut$Introvert,
    ylab = "Texts Received – Texts Sent",
    xlab = "Introversion Level",
    ylim = c(-25, 20))

title(main = "Outlier Analysis",
      cex.main = 2,
      font.main = 4,
      col.main = 'red')

title(sub = "Scale 1- 10",
      cex.sub = .8)

no_outlier_reg <- lm(StudentDataNoOut$TxtRec
                     - StudentDataNoOut$TxtSent
                     ~ StudentDataNoOut$Introvert)

outlier_reg <- lm(StudentData$TxtRec
                     - StudentData$TxtSent
                     ~ StudentData$Introvert)

lines(abline(outlier_reg,
             col = 'red',
             lwd=3))

lines(abline(no_outlier_reg,
             col = 'black',
             lwd=3,
             lty=2))

lines(abline(h = 0,
             col = 'blue',
             lty = 2))

legend("bottomleft",
       inset = 0.05,
       title = 'Fits',
       c("With Outlier","Without Outlier"),
       lty=c(1,2),
       lwd=c(3,3),
       col=c("red", "black"))
```

Outlier Analysis



Question 3

```
plot(StudentData$TxtRec
    - StudentData$TxtSent
    ~ StudentData$Introvert,
    pch = c(1,2)[as.numeric(as.factor(StudentData$Snapchat))],
    col = c('black','red')[as.numeric(as.factor(StudentData$Snapchat))],
    ylab = "Texts Received - Texts Sent",
    xlab = "Introversion Level",
    )

title(main = "Texting vs. Introversion vs. Snapchat")

legend("topleft",
       inset = 0.05,
       title='Snapchat',
       c("Y","N"),
       pch = c(2,1),
       col = c('red', 'black'))
```


Texting vs. Introversion vs. Snapchat
Texts Received – Texts Sent
-20
0
20
60
100
Snapchat
Y
N
1
2
3
4
5
6
7
8
Introversion Level