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Stat318 HW3

1/29/19

2) Code for calculation of p-value

```
> 1-psignrank(68,12)
[1] 0.008056641
```

3) Code for calculation of p-value

```
> psignrank(12,8)
[1] 0.2304688
```

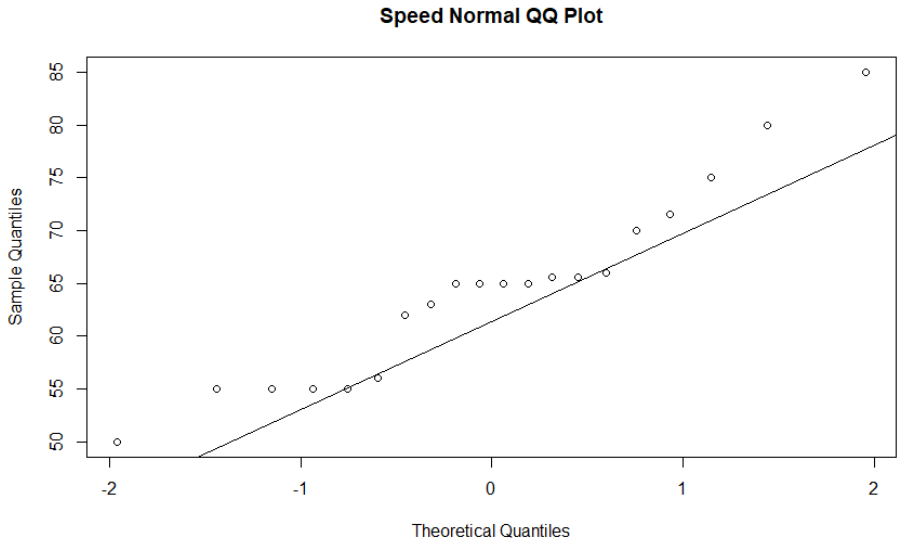
5)

a)
Ho: Ø= 55mph
Ha: Ø> 55mph
V_c= 134
p= 4.578e-5
Interpretation: If the null hypothesis, that the typical maximum speed of the roller coasters in equal to 55mph, we would expect to see data like ours, or more extreme, 4.578e-3 % of the time.
Conclusion(p<.01): There is very strong evidence in favor of the alternative hypothesis that the typical maximum speed of the roller coasters is greater than 55mph.

```
> coaster.data1= read.delim("clipboard", header=T)
> coaster.data2= coaster.data1[,2]
> install.packages("exactRankTests")
> library(exactRankTests)
> wilcox.exact(coaster.data2,mu=55, alternative = "greater")

        Exact Wilcoxon signed rank test

data:  coaster.data2
V = 134, p-value = 4.578e-05
alternative hypothesis: true mu is greater than 55
```

b)

```
> qqnorm(coaster.data2, main="Speed Normal QQ Plot")
> qqline(coaster.data2, main="Speed Normal QQ Plot")
```

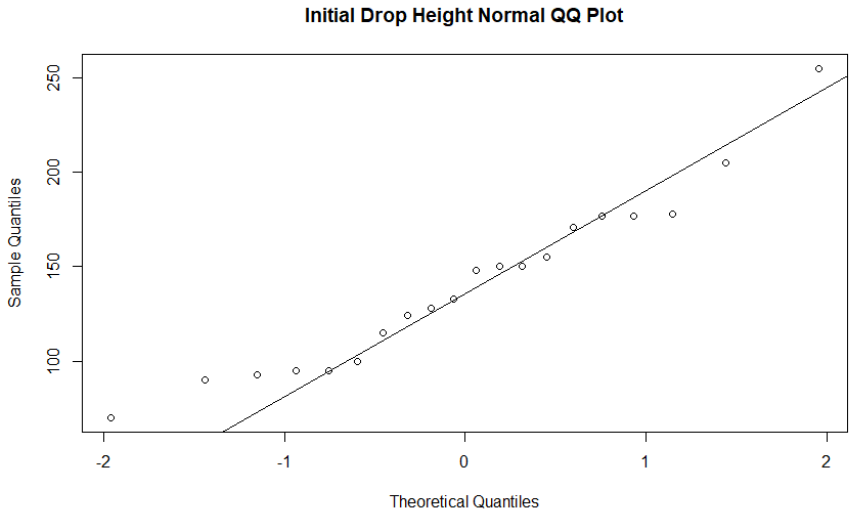


5)

b) continued

From the Speed Normal QQ Plot, it would be most appropriate to use a non-parametric method because the data does not fit well to the line.

```
> qqnorm(coaster.data3, main="Initial Drop Height Normal QQ Plot")
> qqline(coaster.data3, main="Initial Drop Height Normal QQ Plot")
```



From the Initial Drop Height Normal QQ Plot, it would be most appropriate to use a t-tool method.

6)

a)

Ho: Ø= 2 million dollars

Ha: Ø< 2 million dollars

V_c = 78.5

p= .9497

Interpretation: If the null hypothesis that the typical MLB salary is less than 2 million dollars is true, we would expect to see data like ours, or more extreme, 94.97% of the time.

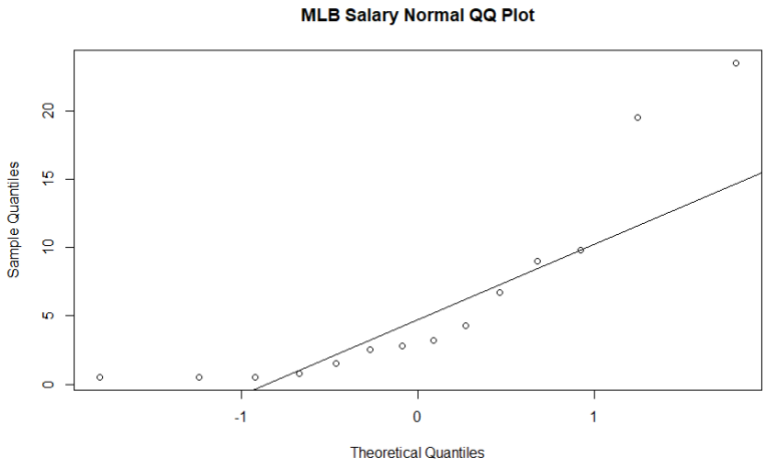
Conclusion (p>.1): There is little to no evidence to support the alternative hypothesis that the typical MLB salary is less than 2 million dollars.

6) continued

```
> mlbsalary.data= c(23.5,19.5,9.8,9.0,6.7,4.27,3.2,2.8,2.5,1.5,.8,.51,.51,.51)

> wilcox.exact(mlbsalary.data, mu=2, alternative = "less")

        Exact Wilcoxon signed rank test

data:  mlbsalary.data
V = 78.5, p-value = 0.9497
alternative hypothesis: true mu is less than 2
```

b)

```
> qqnorm(mlbsalary.data, main= "MLB Salary Normal QQ Plot")
> qqline(mlbsalary.data, main= "MLB Salary Normal QQ Plot")
```



The most appropriate test for the MLB Salary data would be a non-parametric procedure.