presentation_3-17.Rmd

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3.17) Given the exam scores from 20 Intro Stats students, determine if the scores follow the 68-95-99.7% Rule:

```
library(StMoSim)
```

```
## Loading required package: RcppParallel
```

```
## Loading required package: Rcpp
```

```
final.score<-c(57,66,69,71,72,73,74,77,78,78,79,79,81,81,82,83,83,88,89,94)

mu<-77.7
sd.score<-8.44

#final.score[final.score>min(rango) & final.score<max(rango)]

count_normal<-function(x,rang)
  {
    total<-length(x)
    y<-rep(0,total)
    y[x>min(rang) & x<max(rang)]<-1
    da<-length(y[y==1])
    return(da)
}
```

1 standard deviation:

```
rango<-c(mu+sd.score,mu-sd.score)
count_normal(final.score,rango)/length(final.score)
```

```
## [1] 0.7
```

2 standard deviations:

```
rango<-c(mu+2*sd.score,mu-2*sd.score)

count_normal(final.score,rango)/length(final.score)
```

```
## [1] 0.95
```
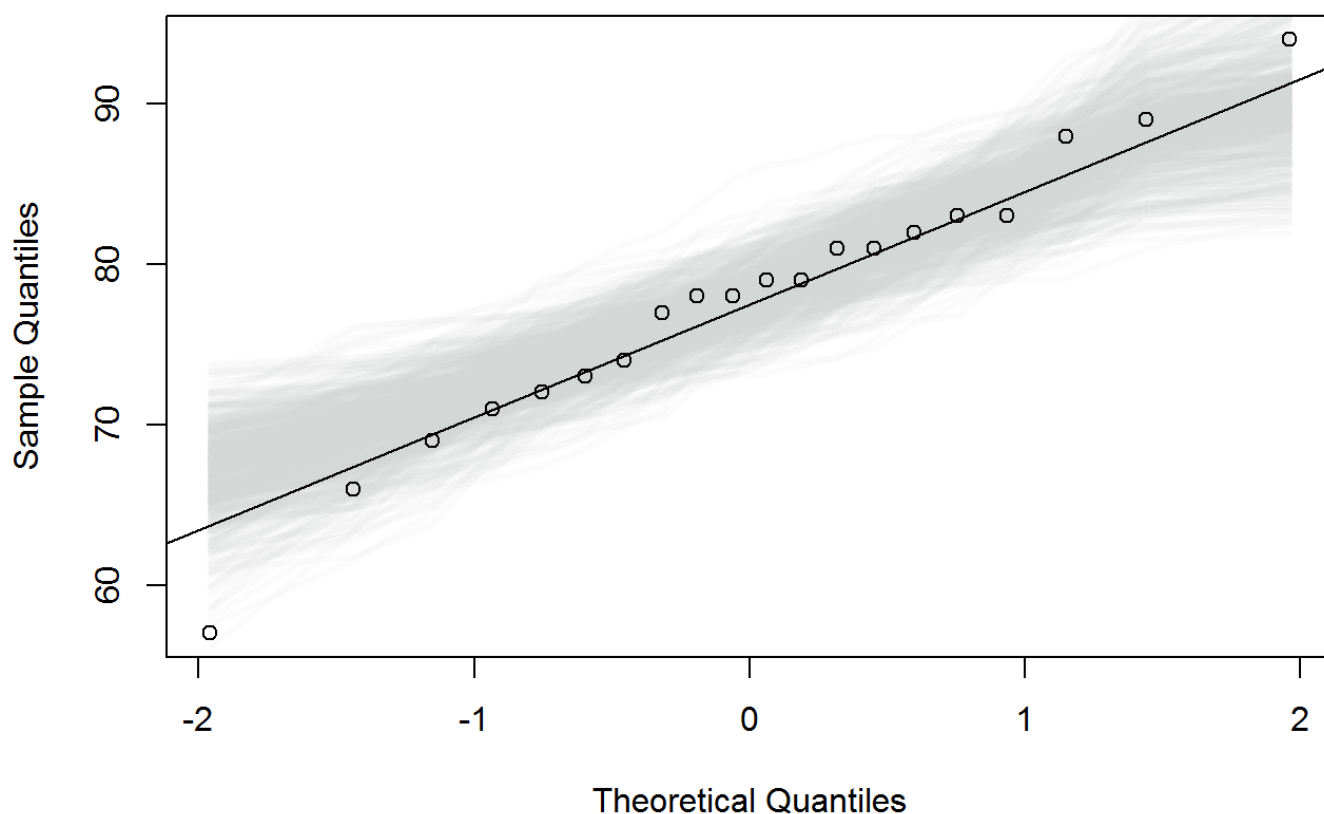
3 standard deviations:

```
rango<-c(mu+3*sd.score,mu-3*sd.score)

count_normal(final.score,rango)/length(final.score)
```

```
## [1] 1
```

b. Do these data appear to follow a normal distribution? Explain your reasoning using graphs.

```
qqnormSim(final.score)
```

Normal Q-Q Plot - SIM

The distribution is unimodal with the majority of the observations near the mean. Tails are reasonable and no apparent skew.
The qq plot reveals no systematic patterns and the outliers seem to not deviate too far from the straight line. Perhaps some downside skewness, but a normal distribution can be used as a proxy.