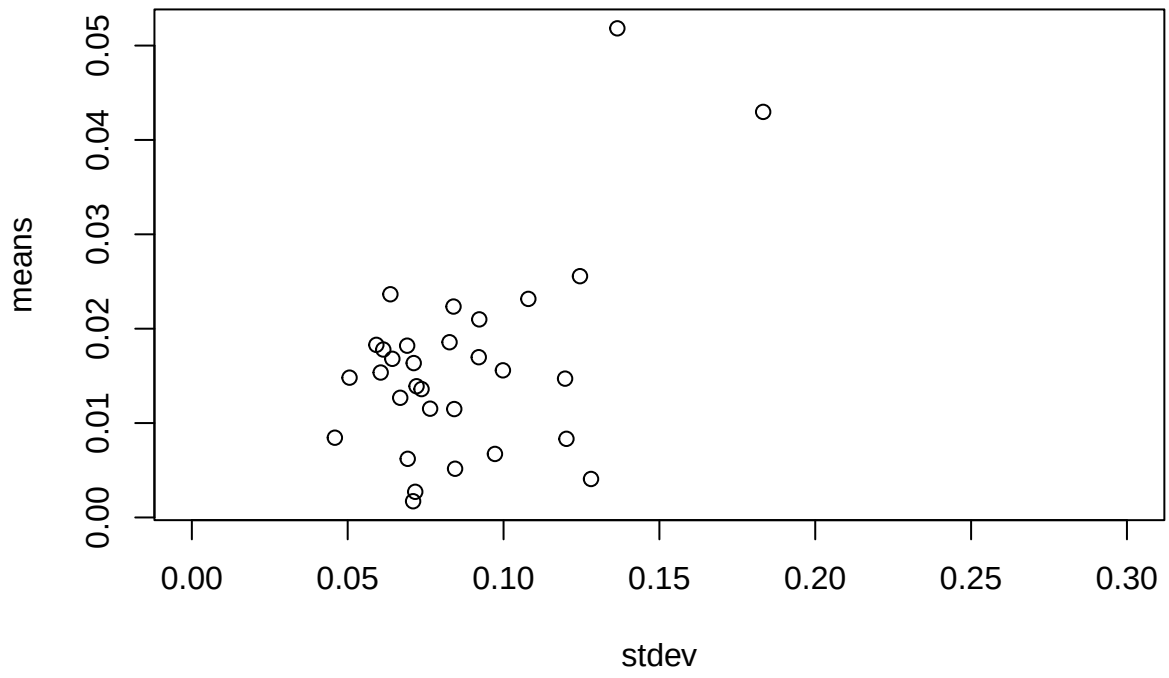
C183 - Project 1

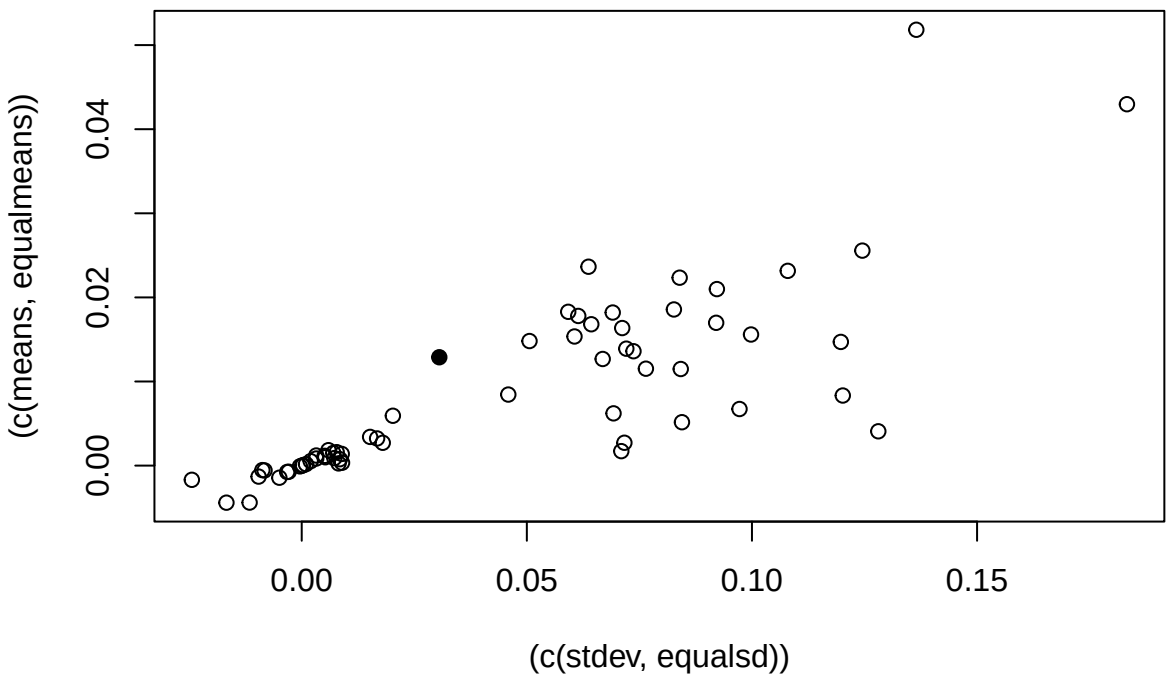
```
library(ggplot2)

stock <- read.csv("stockData.csv", sep=",", header=TRUE)

#Convert adjusted close prices into returns:
r <- (stock[-1,3:ncol(stock)]-stock[-nrow(stock),3:ncol(stock)])/stock[-nrow(stock),3:ncol(stock)]

#Compute mean vector:
means <- colMeans(r)

#Compute variance covariance matrix:
covmat <- cov(r)

#Compute the vector of variances:
variances <- diag(covmat)

#Compute the vector of standard deviations:
stdev <- diag(covmat)^.5


plot(stdev, means, xlim=(c(0,0.3)))
```




```
##Equal allocation

ones <- rep(1,30)
covmat <- cov(r[,-1])
weights <- solve(covmat) %*% ones / as.numeric( t(ones) %*% solve(covmat) %*% ones )
sum(weights)
```

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

```
means2 <- colMeans(r[-1])
covmat2 <- cov(r[-1])
stdev2 <- diag(covmat2)^.5

equalmeans <- weights * means2
equalsd <- weights *stdev2

plot(x = (c(stdev, equalsd)), y = (c(means, equalmeans)) )


means <- colMeans(r[-1])
rpbar <- t(weights) %*% means
varp <- t(weights) %*% covmat %*% weights

sdp <- varp^0.5

points(sdp, rpbar, pch = 19)
```


(c(means, equalmeans))
0.00
0.02
0.04
0.00
0.05
0.10
0.15
(c(stdev, equalsd))