# Lab 4 Output

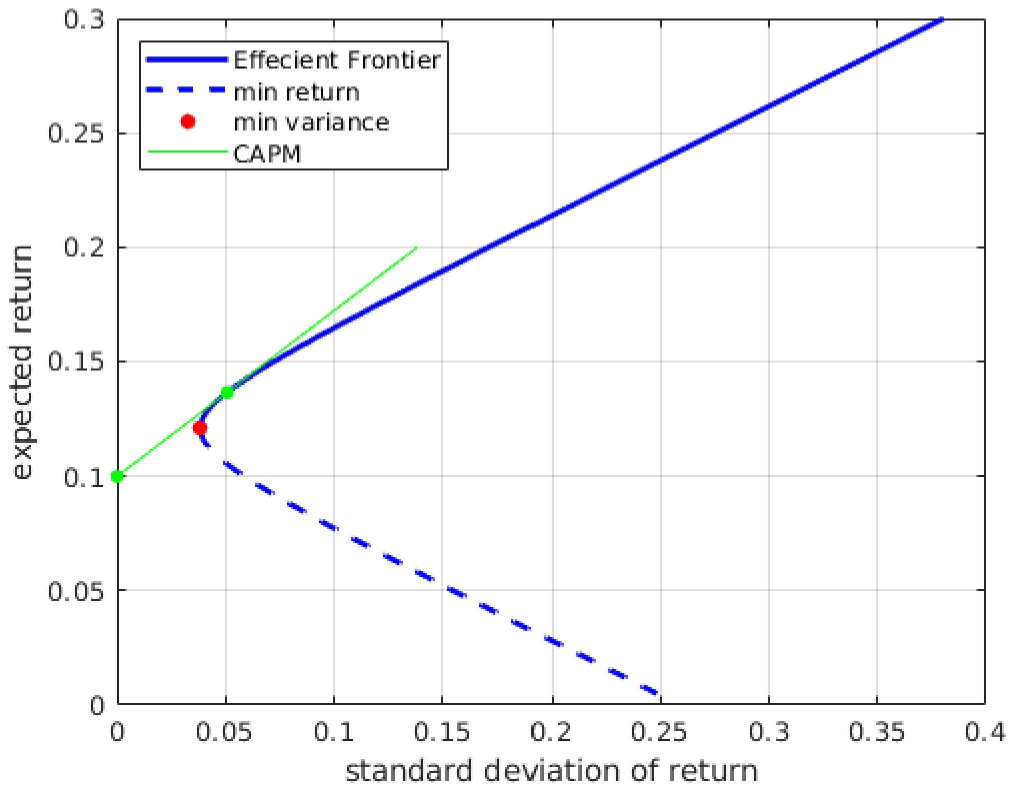
Q1.

```
Risk    Return  Weights
0.248   0.005   2.479 -0.421 -1.058
0.248   0.005   2.477 -0.420 -1.057
0.248   0.005   2.475 -0.419 -1.055
0.247   0.005   2.473 -0.419 -1.054
0.247   0.006   2.470 -0.418 -1.053
0.247   0.006   2.468 -0.417 -1.051
0.246   0.006   2.466 -0.416 -1.050
0.246   0.006   2.464 -0.415 -1.049
0.246   0.006   2.462 -0.414 -1.048
0.246   0.006   2.460 -0.414 -1.046
```

```
At 0.15 risk

min return=0.053

Corresponding Portfolio: w1=1.799, w2=-0.151, w3=-0.648
```

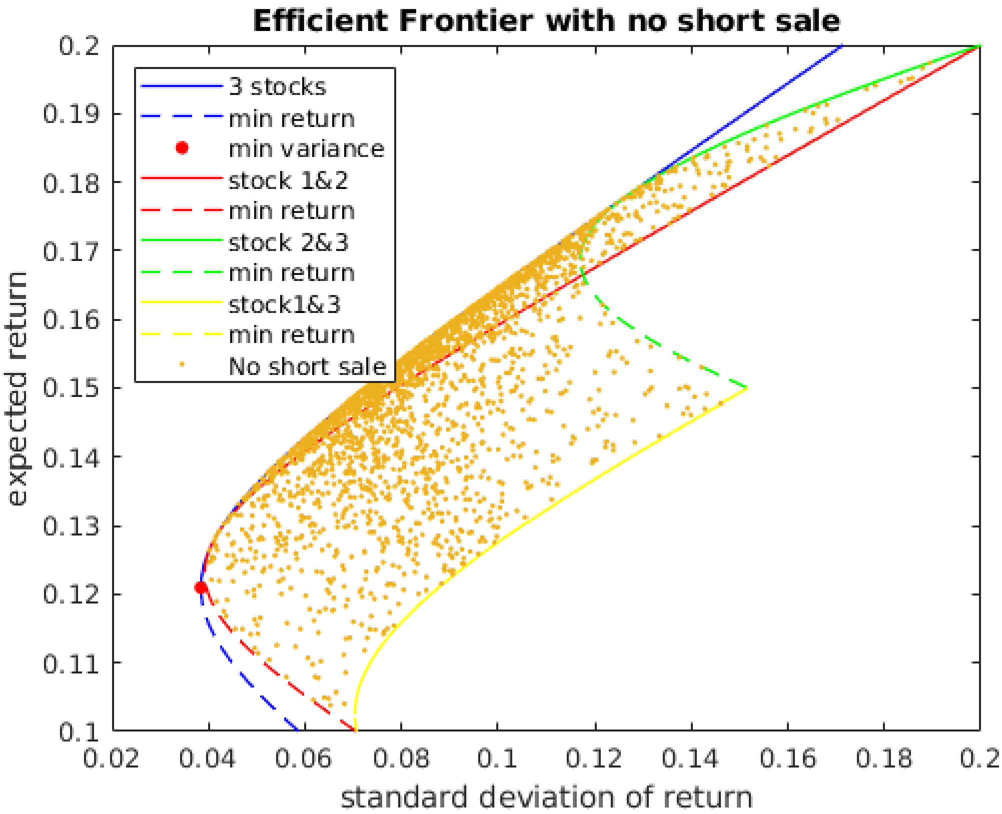
```
At 0.15

max return=0.190

Corresponding Portfolio: w1=-0.163, w2=0.629, w3=0.534
```

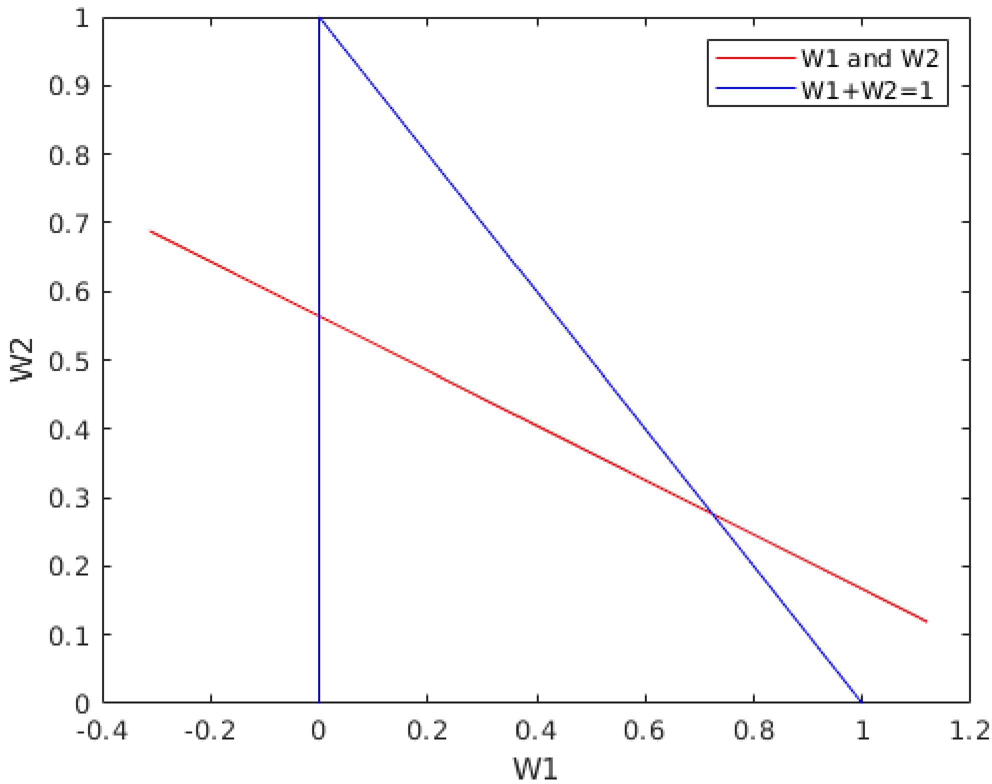
```
At 0.18 risk

min return=0.038

Corresponding Portfolio: w1=2.008, w2=-0.234, w3=-0.774
```



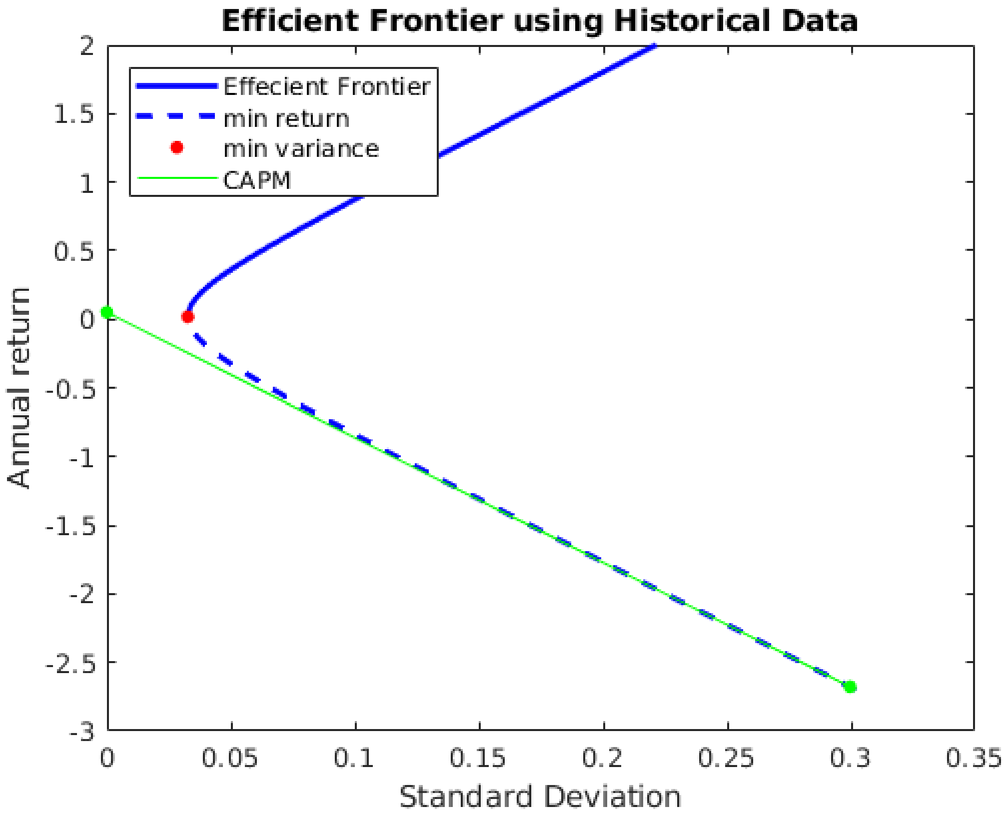

```
return for 0.1 risk=0.172

return for 0.25 risk=0.281
```

Q2.


Efficient Frontier with no short sale
3 stocks
min return
min variance
stock 1&2
min return
stock 2&3
min return
stock1&3
min return
No short sale
expected return
standard deviation of return
0.1
0.11
0.12
0.13
0.14
0.15
0.16
0.17
0.18
0.19
0.2
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2


W1 and W2
W1+W2=1
W2
W1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
1.2

Q3.




```
Market Portfolio has return=-2.678 and risk=0.300
```