“Sugato Weighted Long-Short Dow Trading Strategy”

Consider a daily portfolio of 6 Dow Stocks, s[1] thru s[6].
We have 6 weights, w[1] thru w[6]
Constraint on weight: Must be one of {0.05,0.1,0.15,0.2 ,…, 0.85,0.9,0.95}
(Diversification constraint: Weight can’t be 0 or 1)
Constraint on weight: w[1] + w[2] + w[3] = 1
Constraint on weight: w[4] + w[5] + w[6] = 1

Strategy: Sort yesterday’s returns.
s[1] thru s[3] = Yesterday’s 3 worst performing stocks
s[4] thru s[6] = Yesterday’s 3 best performing stocks

Go long s[1] thru s[3] :
LR = Long Return = s[1]*w[1] + s[2]*w[2] + s[3]*w[3]

Short s[4] thru s[6] :
SR = Short Return = - (s[4]*w[4] + s[5]*w[5] + s[6]*w[6])

Close out stocks at end of day.
Total Daily Return = LR + SR

Q1. How many such {w[1], w[2],w[3],w[4],w[5],w[6]} tuples overall ?
Ans. 29241

Q2. What do the best possible tuples return PER MONTH ?

```
> head(returnMat,10)
      Long Long Long Short Short Short Monthly Return
 [1,] 0.90 0.05 0.05  0.90  0.05  0.05     0.10133349
 [2,] 0.85 0.10 0.05  0.90  0.05  0.05     0.10047601
 [3,] 0.90 0.05 0.05  0.85  0.05  0.10     0.09981474
 [4,] 0.80 0.15 0.05  0.90  0.05  0.05     0.09961854
 [5,] 0.85 0.10 0.05  0.85  0.05  0.10     0.09895726
 [6,] 0.75 0.20 0.05  0.90  0.05  0.05     0.09876106
 [7,] 0.90 0.05 0.05  0.80  0.05  0.15     0.09829599
 [8,] 0.80 0.15 0.05  0.85  0.05  0.10     0.09809979
 [9,] 0.70 0.25 0.05  0.90  0.05  0.05     0.09790359
[10,] 0.85 0.05 0.10  0.90  0.05  0.05     0.09786104
```

E.g. see[6] : Buy (75%, 20%,5%) of yesterday’s 3 worst performing stocks. Sell (90%,5%,5%) of yesterday’s 3 best performing stocks. Hold until end of day & close out. 9.87% monthly return.

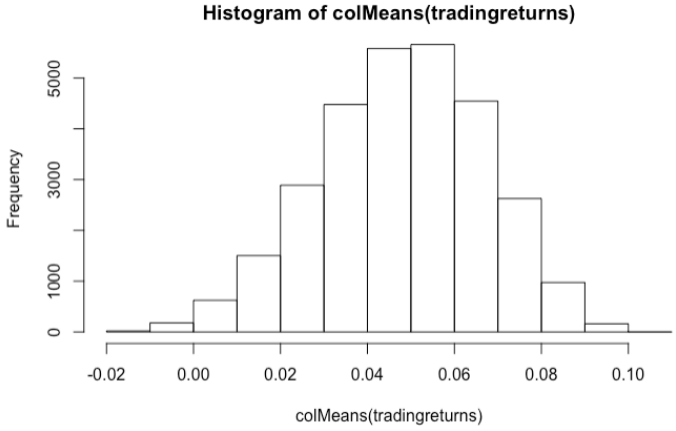
Q3. What do the worst possible tuples return PER MONTH ?

```
> tail(returnMat,10)
         Long Long Long Short Short Short Monthly Return
[29232,] 0.05 0.05 0.90  0.10  0.80  0.10    -0.01240011
[29233,] 0.10 0.05 0.85  0.05  0.85  0.10    -0.01247322
[29234,] 0.05 0.15 0.80  0.05  0.90  0.05    -0.01274253
[29235,] 0.05 0.10 0.85  0.05  0.85  0.10    -0.01333070
[29236,] 0.05 0.05 0.90  0.05  0.80  0.15    -0.01391886
[29237,] 0.05 0.05 0.90  0.10  0.85  0.05    -0.01442692
[29238,] 0.10 0.05 0.85  0.05  0.90  0.05    -0.01450003
[29239,] 0.05 0.10 0.85  0.05  0.90  0.05    -0.01535750
[29240,] 0.05 0.05 0.90  0.05  0.85  0.10    -0.01594567
[29241,] 0.05 0.05 0.90  0.05  0.90  0.05    -0.01797247
```

E.g. Buy (5%, 5%,90%) of yesterday's 3 worst performing stocks. Sell (5%,85%,10%) of yesterday's 3 best performing stocks. Hold until end of day & close out. -1.59% monthly return.

Q4. Sample Size?
N = 221 (There are 221 possible consecutive 30-day periods in 2018)
So we have 29241 tuples for each of the 221 possible months.

Q5. Return Distribution?



Positive skew, averaging around 5% a month.

Q6. Advantage over equal-weighted?
An (almost) equal weighting of (30%,35%,35%) long & (30%,35%,35%) short portfolio nets 4.49% monthly. Finding the optimal tuple gets us 2.06x i.e. over twice the return we would have obtained otherwise.