Homework # 4

1. (each problem is 5pt) Do 16.10.1 R lab of Chapter 16 (problems 1, 2, and 3) . To get credit, you NEED to provide the program you used to do it in addition to the answers to the questions2.

2. (15pt) Suppose a firm is planning to invest $ 1,000,000 in a risk free and a risky asset A. Assume that $\mu_f = 5\%, \mu_A = 12\%$ and $\sigma_A = 25\%$.The company has capital reserves to cover $ 200,000 but no more and would as a result to loose this amount or more with a probability equal to 0.01. If $\omega R_A + (1 - \omega)\mu_f$, the return of their investment is normally distributed, find the value of ω that achieves their requirement.

3. The table below gives example data on monthly means, standard deviations and covariances for the returns on Microsoft, Nordstrom and Starbucks (assets A, B and C) based on sample statistics computed over the five-year period January, 1995 through January, 2000

Asset	μ_i	σ_i	Pair(i, j)	σ_{ij}
A	0.0427	0.1000	(A,B)	0.0018
B	0.0015	0.1044	(A, C)	0.0011
C	0.0285	0.1411	(B,C)	0.0026

   (a) (4pt) Find the the global minimum variance portfolio. What is its mean equal? What is its variance equal to?

   (b) (4pt) Find the efficient portfolio of theses assets with the same expected return as Microsoft. What is its risk equal to?

   (c) (4pt) Assume a risk-free rate of 0.0001 per month for the T-bill (risk free rate). What are the weights of the tangency portfolio?

   (d) (3pt) Find the portfolio with of risky assets and the risk free asset with the same expected return as Microsoft. What is its expected risk equal to?