Portfolio Optimization: Part 2

Available Data

We are given the following information about a collection of assets:

- μ_i: the average return for the i-th asset
- σ_i^2: the variance of the return for the i-th asset
- σ_{ij}: the covariance between the returns of the i-th and j-the asset. Note that $\sigma_{ii} = \sigma_i^2$.

Model Variables

- r_i: random variable representing the return on the i-th asset
- w_i: weight (fraction) of i-th asset in a portfolio

Problem 4

Generate a plot of the optimal portfolio return vs risk tolerance τ.

Problem 5

Write a function that compute the optimal portfolio weights for a specified risk tolerance τ.

Problem 6

Write a unit test for the function in Problem 5.