Portfolio Optimization Assignment

Group Assignment (OB)
Weightage: 5%
Deadline: 18th October 2022, 11:59pm

Select n assets were n is equal to 2x, x is number of members in a group. Assets could be any financial asset. Please provide explanation to the assets considered (eg. Different sectors, different asset classes to diversify; similar sectors return to risk ratios for different financial assets, etc.)

I. **Using historical data** compute the expected return, variance and covariance of returns

Draw the efficient frontier starting from MVP
Select a Utility function and Draw the utility curve and Provide the asset allocation solution
Case 1: No short selling and no riskless lending and borrowing
Case 2: With short selling and riskless lending and borrowing
Perform the analysis using
1.1 Excel solver
1.2 Python code (Sample code is shared with you)
1.3 Matrix analytical solution of MVP and 1 target return

II. **Using market model** compute the expected return, variance and covariance of returns (yet to be done in class, will be covered on 7th October 2022 in class)

Draw the efficient frontier starting from MVP
Select a Utility function and Draw the utility curve and Provide the asset allocation
Case 1: No short selling and no riskless lending and borrowing
Case 2: With short selling and riskless lending and borrowing
Perform the analysis using
2.1 Excel solver
2.2 Python code (Sample code is shared with you)
2.3 1.3 Matrix analytical solution of MVP and 1 target return