**BMD5302 Financial Modeling**

**Group Project: Robot Adviser**

**AY 2024/25 Semester 2, January 2025**

**Motivation**

This produces a robot adviser.

**Instructions**

1) Form into groups of 5

2) The deadline is 26 April 2025 Saturday 2359 hrs.

3) Please submit softcopy of excel and word document on the deadline. The word document should be self-sufficient with all necessary diagrams and charts for explanation. Formulas should be mentioned as well.

4) Name your file as “A01FIN3716Proj1.pdf”. Change the “A01” to your group number. Do not group your files into a .zip file, submit them individually.

5) Include a cover page that states the course code BMD5302 Financial Modeling, and list the name of your group members in ascending order.

**Problem Statement**

**Part 1: The Efficient Frontier (30 marks)**

1) pick 10 funds from fundsupermart

<https://secure.fundsupermart.com/fsmone/tools/fund-selector>

You can download the historical prices of each fund.

2) construct the average return of each fund, and the variance covariance matrix.

3) graph the efficient frontier with short sales and without short sales, the points of each fund, and the GMVP with short sales and without short sales.

**Part 2: The Risk Aversion, Optimal Portfolio (30 marks)**

1) The utility function of the investor is U = r – sigma^2 \* A / 2, where A is the risk aversion.

2) Formulate a questionnaire that results in setting a risk aversion value for the investor.

3) Find the optimal portfolio based on the investor’s risk aversion.

**Part 3: The Platform (20 marks)**

1) Excel

2) Web page.

3) Chatbot.

4) others.

**Part 4: The Video (20 marks)**

1) 15 mins intro and demo of your app.