Quantitative Data Analyst Take Home Project

Data:

weekly_returns.csv - weekly total return data for selected ETFs

ticker_attributes.csv – attributes that can be joined to weekly_returns.csv

Objectives:

1. Use the provided data to make an efficient portfolio recommendation for each of the following risk tolerances:

Aggressive (high risk tolerance)

Balanced (medium risk tolerance)

Conservative (low risk tolerance)

Please assume an investment horizon of 1-2 years.

Feel free to transform or truncate the data any way you see fit.

2. Format the output so that it could be inserted into a relational database table with the following column names:

recommendation_date: (Date): date the recommendation is being made

risk_tolerance (varchar): Aggressive, Balanced, or Conservative

ticker (varchar): ticker symbol

weight (float): ticker weight

Please include this output as a .csv file. The file should contain recommendations for all three portfolios.

Requirements:

1. Analysis should be done with a programming language (Python or R is preferred)

2. Include a detailed explanation of the methodology used, including any qualitative overlays or data preprocessing steps.

3. Include any visualizations that help explain your recommendations

4. Explain the tools you used (programming languages, packages, etc.)

Final Details:

The goal of this project is to assess your technical portfolio construction skills. Further, we will be looking at how you approach programming, data visualization, and data integrity.

You are welcome to use any packages to help solve the problem, but you should be comfortable explaining what your code is doing.

It is recommended that you use a Jupyter Notebook for this project, and include all code, visualizations, and explanations together.

If you would rather create a separate written report, be sure that it is clear how the code was used to guide your recommendations.