Model Tester Programming Exercise - Instructions

Please read all instructions carefully and make sure you understand them. Ask any questions you have about the instructions prior to your scheduled timed response window.

The goal of this exercise is to provide a means for cQuant to evaluate how you structure analysis and write code.

Preparation:
Download the data from the GitLab link you receive for the exercise at the start of your response time and save it somewhere on your computer. You will not receive this link until your response time starts. Create a new empty directory where you will save all output you generate as part of this exercise (CSV files, images, etc.). Read through the full list of task descriptions in the ProgrammingExercise_Tasks.pdf document in the repo to understand the full scope of the exercise. Some tasks are completely objective and have "black and white" answers; others are more open-ended and allow some room for interpretation and analytical creativity.

Your Response:
Your response includes all output you generate as part of the exercise as well as all the code, figures, or other materials that you generate to complete the exercise. Save all such files in an organized manner within the directory you created in the Preparation section above. **You will have 2 hours to respond to the programming exercise**, after which time you should submit your response by committing/pushing all materials to a web-hosted Git repository (this may be on GitLab, BitBucket, GitHub, or some other hosting service). Be sure to provide access to the repo to the cQuant staff-member who contacted you for the exercise and email them a link to the repo so they can access your response.

You are encouraged to be efficient with your time and complete as much of the exercise as you can within the time allotted. However, **it is not required** that you complete the entire exercise for you to be eligible for hire. If you are mid-way through responding to a particular task after the allotted time is exhausted, submit whatever partial code you have toward the solution; in this case, you may wish to outline your proposed approach in commented-out pseudocode to demonstrate understanding of the analytical problem.

Resources:
You may use any resources available on the internet or in any printed material, e.g., web searches, forum posts, blog articles, electronic texts, physical books or articles, etc. You ***MAY NOT*** consult other people directly during the exercise.

Programming Language:
You may use either R or Python to complete the exercise. R is preferred, since it is the language most used within the cQuant Analytics Team today; however, you should be sure to use a language in which you're comfortable so as to provide the best response possible. Your code will be reviewed, so please employ best practices for code readability. Your code will also be run by a cQuant evaluator. To make this as seamless as possible, please name your main script or function "main.R" or "main.py" and put any system specific parameters (e.g., filepaths, environment variables, required packages/libraries, etc.) at the top of the file so that the

evaluator can update them efficiently as needed. Please be sure your code runs before submitting your response.

Thank you for your interest in cQuant.io and good luck!