Technical Challenge — Portfolio Optimization

We thank you for accepting this challenge. We are looking forward to our next meeting in order to discuss your work.

This task takes approximately 3 hours to complete.

Scenario:

Congratulations! You are now working as a quant in a hedge fund. The portfolio manager has requested a **long-only asset allocation** for a portfolio composed of **US mid-cap equities**.

You are responsible for sourcing the data, performing the analysis, and delivering the optimized allocation weights.

Your task:

1. Use a Python implementation to source data (from yahoo finance)
2. Apply **Markowitz mean–variance portfolio optimization** to determine the allocation weights. The portfolio is a long-only portfolio.

Delivery:

- Python implementation with running indications.
- Github repository that must be shared with the user “dmp-jedi”

Important remarks:

- Under this scenario, you would run this code several times (on each portfolio rebalance after a couple of days or months). Take this into account when creating your code structure.
- Your results would be shared with several important stakeholders.

Asset Universe

For this request, the portfolio consists of the following **10 US mid-cap stocks**:

1. **ROKU** — Roku Inc.
2. **DOCU** — DocuSign Inc.
3. **SNAP** — Snap Inc.
4. **ETSY** — Etsy Inc.
5. **TWLO** — Twilio Inc.
6. **NET** — Cloudflare Inc.
7. **PINS** — Pinterest Inc.
8. **UBER** — Uber Technologies Inc.
9. **SQ** — Block Inc.
10. **COIN** — Coinbase Global Inc.