

Assignment 6: Final Project Documentation and Conclusion

Objective

The objective of this assignment is to consolidate all work completed in Assignments 1 to 5 into a well-organized GitHub repository and produce a final technical documentation of the project. The focus is on clarity, reproducibility, and proper presentation of results.

No new experiments or models are required.

Task Roadmap

- **Repository Restructuring:** Organize code, data, and trained models into a clean and hierarchical structure.
- **Master README:** Write a high-level technical overview of the problem, methodology, and workflow.
- **LaTeX Results Appendix:** Summarize Fidelity, Trace Distance, and runtime using formal mathematical notation.
- **Final Reflection:** Discuss scaling limits observed and suggest possible future improvements.

Repository Structure

Your GitHub repository should follow the structure below for clarity and ease of review:

```
Open_Project_Winter_2025/  
|-- data/          (SIC-POVM or Pauli datasets in .npy or .npz format)  
|-- models/        (Saved ML-QST checkpoints in .pkl or .pt format)  
|-- notebooks/     (Cleaned Assignment 1-5 notebooks)  
|-- src/           (Modular Python scripts)  
|-- results/       (Plots in PNG/PDF and LaTeX tables)  
|-- README.md      (Primary project documentation)
```

Only include files that are directly used in the project.

Documentation Requirements

- The `README.md` must describe the problem statement, approach, and overall workflow.
- All plots included in the report must be generated from the project code.
- Numerical results should be summarised using equations and tables where appropriate.

Final Deliverables

- Public GitHub repository link
- Final report written in tex, md, or deployed via **GitHub Pages**
- All the necessary plots and tables included in the report

Expected Outcome

At the end of this assignment, the project should resemble a complete and well-documented research mini-project suitable for academic review or future extension.