Course Project 1 (Due: 23:59 Dec 3, 2023)

- Implement the symmetric QR algorithm for computing all eigenvalues and eigenvectors of a real symmetric matrix. Make sure your implementation has $O(n^3)$ complexity.
- Write a report (either in Chinese or in English) for your implementation. The report should contain necessary components such as code structure, detailed algorithm, numerical experiments (on accuracy, performance, and convergence behavior), etc. *However, an unnecessarily long report will negatively affect your grade.*
- You are not encouraged to collaborate with others, though discussions are permitted. Helpful inputs from peers should be properly acknowledged in the report.
- Submit necessary supplementary data (programs, test examples, etc.) along with your report.
- Your entire submission *cannot exceed 8 MB (i.e., 8,388,608 bytes)* unless otherwise approved.