Project 3: Benchmarking openGauss Against PostgreSQL: A Comparative Analysis

openGauss is an open-source relational database management system (RDBMS) developed by Huawei. It is designed for enterprise-level applications and is based on PostgreSQL, with enhancements tailored for high performance, reliability, and security. openGauss is claimed to be especially suited for complex data-intensive scenarios, such as financial systems, telecommunications, and large-scale e-commerce platforms.

But is openGauss as excellent as its claims suggest? This project aims to explore and evaluate this question.

The questions should be answered

1. What criteria should be used to evaluate the quality of a database? Identify and list the key metrics.
2. Compare openGauss with PostgreSQL based on the metrics you've listed. The comparisons should be well-designed, comprehensive, and persuasive, backed by relevant experiments.
3. Provide a detailed evaluation of openGauss, including its strengths and weaknesses, supported by your findings.
4. The report and the related source code should be released online. Publish your project report and source code online. Use GitHub or any other preferred platform for hosting. Remember to include the URL in your submission.

Rules:

1. It is a personal project. Each student should do it separately and submit one report for the project.
2. The project report and the source code must be submitted by the deadline. Any submission after the deadline (even by 1 second) will result in **a score of 0**. The deadline is 23:59 on November 22 (Sunday).
3. The files should be submitted as report.pdf, along with associated files (e.g., code). The files should **NOT** be compressed into one single zip file.
4. Do NOT use AI tools like ChatGPT to generate low-quality or irrelevant text.
5. The score will depend on the quality of both the source code and the report. The report should be easy to understand and provide a clear description of the project, especially the highlights.