1. I found more bugs using log files than assertions because log files can provide more information by displaying each variable value and the context state. It helped me to trace issues back to the source. While assertions are valuable for checking if specific conditions are met at certain points, they do not offer broader insights into ongoing processes or interactions within the application. Log files, on the other hand, allow for a detailed information. It gives an easier way to understand the sequence of execution flow and the place that has the possibility to have a bug. I prefer to use it to trace the state of my program.
2. I prefer debugging with log files because it allows me to understand the program’s behavior, every function’s context. Also, a debugger is hard to access my program while running in a production environment. Also, another advantage of logging files is to trace historical record producing from the program over time. It is much useful when the program running 24/7. The defect of debugging with log files is that it is generally slower than directly using debugger to find a bug, because most of time tracing bugs with log files must deal with a big number of logs. It takes time to locate the problems.
3. Although I gained confidence through including the logging and fixing as many as bugs I found, it is still challenging to say the code is completely free from hidden bugs. Some bugs only appear in very rare situations. Finding all of them is not only impossible but also cost-ineffective. I believe we could implement some additional testing for most scenarios to ensure our program can comprehensively meets the requirements. The more the software is used, the more stable it becomes.