

INFO1111: Computing 1A Professionalism

2025 Semester 1

Skills: Team Project Report

Submission number: T4 SL Group 6 (1)

Github link: https://github.com/KaltsitFan/INFO1111_GROUP.git

Team Members:

Name	Student ID	Target * Foundation	Target * Advanced	Selected Major
Fan Kaffa	510041359	A	NA	Computer Science
FAMNAME2, givenName2	01234567	A	NA	Data Science
FAMNAME3, givenName3	01234567	A	NA	SW Development
FAMNAME4, givenName4	01234567	A	NA	Cyber Security

* Use the following codes:

- NA = Not attempting in this submission
- A = Attempting (not previously attempting)
- AW = Attempting (achieved weak in a previous submission)
- AG = Attempting (achieved good in a previous submission)
- S = Already achieved strong in a previous submission

Contents

1. Group Response

2. Individual Response

2.1. Skills for Computer Science: Kaffa Fan

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2.2. Skills for SW Development: Jared Song

Through this project, I identified two critical skills from the SFIA framework relevant to software development:

Key Technical Skills

- **PROG (Programming/Software Development)**

Developing the disaster system's offline functionality required:

- Implementing local data caching using Python's `shelve` module
- Writing thread-safe code for concurrent access during emergencies

- **TEST (Software Testing)**

Establish comprehensive test coverage for disaster scenarios:

- Parameterized test suite covering distinct failure modes:
 - * Network partitions (simulated with `pytest-timeout`)
 - * Data corruption (CRC32 validation tests)
 - * Resource exhaustion (memory/stress tests)
- Mock service framework featuring:
 - * Configurable failure injection
 - * Latency simulation
 - * Stateful behavior modeling

Skill Development through Collaboration

The team environment enhanced these skills by:

- **Cross-domain feedback:** Data Science members' statistical analysis helped refine our cache invalidation algorithm, the data collected has also simplified the work and made the work more straightforward.
- **Collective problem-solving:** Pair programming sessions fixed race conditions in the resource allocator module
- **Tool knowledge sharing:** Learned GitHub Actions CI configuration from Computer Science teammate, which really helps me enhance my skills and understanding of GitHub.

Areas for Improvement

Through my work on the disaster response system, I've identified several technical and professional skills that require refinement:

- **Performance Optimization:** Need deeper understanding of profiling tools (e.g. cProfile) - evidenced when our stress tests failed at 10,000+ concurrent users, be able to learn more about Python and be proficient in using Python.
- **Technical Documentation:** Find difficulty in using Github and Latex, so learning more skills and implementing automated documentation generation are important.

3. Submission contribution overview

For each submission, outline the approach taken to your teamwork, how you combined the various contributions, and whether there were any significant variations in the levels of involvement. (Target = \sim 100-300 words).

3.1. Submission 1 contribution overview

As above, for submission 1

3.2. Submission 2 contribution overview

As above, for submission 2

3.3. Submission 3 contribution overview

As above, for submission 3

Bibliography