**Quality Plan by Yu Nong**

A. Quality goals and metrics [1]:

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| Product Quality | Quality Goals | Quality Metrics | Strategy |
| Product Operation |  |  |  |
| Correctness | The system shall meet the specifications | The functionality issue reports should less than 5 in the whole lifecycle | Provide beta version to allow customers to experience and provide feedback |
| Reliability | The system shall work accuratly all of the time | The crashing frequency should be less than 3 per year | Stress testing |
| Usability | The system should be easy to learn and operate | A new user should be able to start using it with less than a day’s training | Provide beta version to allow customers to experience and provide feedback |
| Integrity | They system should not be tampered | The data leakage should be less than 1 in 3 years | Unit test on normal cases and boundary cases |
| Efficiency | The system should quickly solve the intended problems | The system should finish all the data query and manipulation in less than one second | Unit test on normal cases and boundary cases |
| Product Revision |  |  |  |
| Maintainability | The bugs and errors can be easily fixed | The source code should be readable, easily traced back to documents. | Code Review |
| Flexibility | The system can be easily changed | The changing in some parts should not affact the whole running. | Objected Oriented Design |
| Testability | The system should be testable | Every class must available for white and black box testing. | Mutation and Unit testing tools |
| Product Transition |  |  |  |
| Reusability | Parts of the system should be able to be reused in another system | Modules in the system can be used in another system in less than 1 week configuring | Standard interface design and Objected Oriented Design |
| Portability | The system should be easily moved to a new platform | The system should work correctly on different models of devices | Standard interface design |
| Interoperability | The system should be able to interaction with other systems | The system should be able to work with other data management systems | Standard interface design |

**Priority of quality goals: (high->low)**

1. Correctness

2. Maintainability, Testability

3. Usability, Efficiency, Reliability

4. Flexibility, Portability

5. Integrity

6. Reusability, Interoperability

**Additional notes:** To finish the project in a short time, our team weighed the priority of quality goals as such a way: Our main goal of this project is to finish a functional and usable product that satisfies the project specification. Thus **Correctness** is the most important metric in our project. If we cannot provide a usable software, the project is meaningless. Then, we have to make sure we can finish the project efficiently. Thus **Maintainability** and **Testability** is of secondary importance. Then, we have to make sure the user experience not too bad. Thus **Usability**, **Efficiency**, **Reliability** must be concerned. **Flexibility** and **Portability** also affect the efficiency and quality of our project. **Integrity** is not a big concern in our project. As we do not have the requirements for reusing and interoperating with other systems, Reusability and Interoperability take a back seat for this project.

[1] McCall, J. A., Rihcards, P. K., Walters, G. F. Factors in Software Quality, Volumes I, II, and III. US Rome Air Development Center Reports, US Department of Commerce, USA, 1977.