1. **Overview**

This document is a plan for testing the project 19 *Development of a Network Forensic Analytic System*. It introduces the test policies, test types, and test cases. The objective of this document is to guide the test process contributing to the project development and ensuring the project is on the right track.

1. **Test policies**
   1. Definition of Test

Test for this project is the process of examining the system with the purpose of identifying any technical errors, deviating or missing requirement compared to the proposed requirements of clients.

* 1. Test Objectives

1. Identifying and fixing technical bugs, faults, and defects.
2. Verifying project integrity versus functional requirements.
3. Assessing performance, scalability, compatibility and reliability.
   1. Tools and Environments
4. Eclipse IDE for Java Developers, Version: Oxygen.3 Release (4.7.3)
5. Junit testing framework, Version: Release 4.12
6. VirtualBox, Version: 5.2.8 r121009 (Qt5.6.2)
7. Cloudera's Distribution Including Apache Hadoop, Version: 5.5.0
   1. Test Evaluation
      1. Test Criteria
8. Performance: The system performs its intended functions in a reasonable time where the client has set thresholds for them.
9. Scalability: The system accepts a large scale of different sizes of input data from the client.
10. Compatibility: The system runs in different environments.
11. Reliability: The system produces the same failure-free result in a certain environment repeatedly.
    * 1. Test status
12. Passed: “Passed” indicates that the result is the same as expected.
13. Failed: “Failed” indicates that the system cannot generate the result, or the result is unacceptable.
14. Partially Passed: “Partially Passed” indicates that the result is close to the expectation but not identical or may cause potential failure in further testing.
    * 1. Test-Driven Development(TDD)

A test case with TDD is written before implementation therefor the code must pass this test case to move on to the next increment. The TDD evaluation in each test case will indicate if the project has passed the test case after failure.

* 1. Test Process Improvement

The testing result will be collected and organised in the form of a testing report for the clients to seek feedback from them.

1. **Test Types**
   1. Component Testing

Component testings verify the functioning of each module of the system individually. It contains partition testing and path testing. Partition testings verify each module with various inputs from valid and invalid partitions. Path testing ensures each path in the program will be executed at least once.

* 1. System Testing

System testing has two phases: integration testing and release testing. Integration testings examine the system as an integration aiming to check the design and behaviour according to the requirements. Release testing for this project is mainly about adjusting the input parameters for a better performance for the client.

1. **Test Cases**
   1. **Component Tesing**
      1. Helper funcitons

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Testing Case ID: | | C001 | | | |
| Testing Purpose: | | Testing if all the helper functions work well. | | | |
| Preconditions: | | Tools and environments have been set up. | | | |
| Step | Actions | | Expected Result | Status | TDD |
|  |  | |  | Passed | - |
|  |  | |  | Paseed | - |
|  |  | |  |  |  |

* 1. **System Testing**