**Document No: 1**

**Date: 11/15/2020**

**Test Plan**

**GSWSA Inventory Project**

Version 1.0.1

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| **Program Title: GSWSA** | GSWSA Inventory Project |
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| **Prepared For:** | CSCI 425 |
|  |  |
| **Prepared By:** | Paul Cerkez, Nathan Marshall, Robert Johnson |

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**GSWSA Inventory Project Test Plan**

(IEEE 829-1998 Format)

# Test Plan Identifier

The test plan will be registered as “1.0000” for its unique GSWSA register number. The testing software we will use will be SQL Server, which will be used to manual test within SQL server queries to evaluate the integrity of the GSWSA Inventory Project. The GSWSA test plan will be represented as a master plan.

The unique identifier for the plan is “GSWSA TP”

**Version history**

|  |  |  |  |
| --- | --- | --- | --- |
| **DATE** | **VERSION** | **DESCRIPTION** | **AUTHOR** |
| 11/11/20 | 1.0.0 | Initial Draft | Marshall |
| 11/15/2020 | 1.0.1 | ‘Final’ Initial Draft | Marshall |
|  |  |  |  |

**Prepared for by**

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**Revision History**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes** |
| 01 | 11/10/2020 | Initial Release |
| 02 | 11/15/2020 | Additional grammar checks |
| 03 | 11/15/2020 | Final Revised Draft |

# Introduction

The purpose of the GSWSA TP is to test a majority of the database functionality and features. The GSWSA TP will be a master plan and be the main plan for the entire project. The GSWSA TP is authorized for viewing and editing by GSWSA registered administrators, authors of the GSWSA project, Professor Paul Cerkez, and assistant GSWSA intern Robert Johnson. This test plan is set in place to detect any early release system flaws or bugs that may be detrimental to the overall GSWSA Inventory project. This test plan is also created to properly document all test of the GSWSA Inventory project to ensure every test is properly defined, as to allow for proper quality up to GSWSA standards. The quality of testing for the GSWSA Inventory project will be delivered through testing descriptions and testing reports that will contain proper specification of each test as well as proper evaluation of each test. For further information and quality verification of the test committed please reference the “GSWSA Test Description” and “GSWSA Test Report” for further clarification. This document as well as all documents involved in the GSWSA Inventory project will adhere and follow to the GSWSA company code of conduct referenced here:

<http://www.gswsa.com/gswsa_public_site/userfiles/file/2019_Sewer%20Specs.pdf>

Any questions regarding the accounting aspect of the GSWSA Inventory Project should be directed towards Professor Paul Cerkez or GSWSA intern Robert Johnson for further insight.

**Referenced Documents**

|  |  |
| --- | --- |
| **Document** | **Author** |
| **GSWSA Inventory Project SS/SSS document** | Nathan Marshall, Paul Cerkez, Robert Johnson |
| **GSWSA Inventory Project CONOP document** | Paul Cerkez, Robert Johnson |
| **GSWSA Inventory Project DBDD document** | Paul Cerkez, Robert Johnson, Nathan Marshall |
| **GSWSA Inventory Project HLR document** | Paul Cerkez, Robert Johnson |
| **GSWSA Inventory Project Test Report** | Paul Cerkez, Robert Johnson, Nathan Marshall |
| **GSWSA Inventory Project Test Description** | Paul Cerkez, Robert Johnson, Nathan Marshall |

# Test Items

This section of the GSWSA TP document will list the items/sections intended to be tested:

1. GSWSA database system features
2. GSWSA Select scripts
3. GSWSA Insert scripts
4. GSWSA database integrity

This list is what will not be tested by the GSWSA TP documents:

1. GSWSA database user interface
2. GSWSA hardware compatibility/stress test
3. GSWSA database capacity

The following paragraph is meant to emphasize and describe critical steps to partake before testing the GSWSA Inventory Project as a whole. The first step is to initialize and setup a mock database inside of SQL server management studio to properly test the GSWSA Inventory database. The second step that must be taken is to initialize and run the setup CREATE scripts inside SQL server management studio, which are referenced in the GSWSA TP “Introduction” section. The third step that follows is to run the INSERT scripts inside SQL server management studio which are referenced in the GSWSA TP “Introduction” section.

# Features to Be Tested

|  |  |  |
| --- | --- | --- |
| **Feature Tested** | **Priority of Test** | **Priority Description** |
| System capture reliability is 100% | H | This is rated high because the database must be able to capture all user data inputted. |
| System archiving will be 100% | H | This is rated high because it is crucial that no sensitive GSWSA information is compromised. |
| Support data analytics | M | This is rated medium because it is slightly important for users to see a formatted chart for GSWSA data. |
| GSWSA ability to modify user capabilities | H | This is rated high because it is crucial that system administrators of the GSWSA are able to revoke and administrate other users access to the GSWSA database. |
| Support for current Legacy reports | L | This is rated low because it is a feature solely meant to slowly transition older associates |
| GSWSA Select scripts | H | This is rated high because it is important that when a user or admin of the GSWSA requests certain information it is properly retrieved and displayed for the users perception. |

# Features Not to Be Tested

This section will address the test items not being tested within the GSWSA Inventory Project.

|  |  |
| --- | --- |
| **Test Item** | **Reason** |
| GSWSA User interface | The reason for lack of testing for the user interface aspect of this project is due in part because the authors of this document have not been granted clearance to build such into the GSWSA Inventory Project. The user interface will be released with the full finalized project but will not be tested or covered in this document. Speak directly with Professor Paul Cerkez or GSWSA intern Robert Johnson for further insight. |
| GSWSA database capacity | The reason this feature is not actively being tested is largely in due part SQL server allows for above the capacity of the previous database and thus is considered low risk and provides little benefit to verify. |
| GSWSA hardware compatibility/stress test | The reason this item is not being tested is due to lack of knowledge provided for what the database will be executed on. As we have not been provided the strengths and weaknesses of said hardware. Speak directly with Professor Paul Cerkez or GSWSA intern Robert Johnson for further insight. |

# Approach

This section will review over all strategies being implemented to test the GSWSA Inventory Project. The GSWSA TP will be the master plan for the entire GSWSA Inventory Project and will use manual testing by using SQL server scripts to evaluate and test features by mocking the database and then performing the desired feature. The test is considered passing if it provides a correct “true” Boolean response following being executed. The GSWSA TP will be using product metrics to ensure the testing of the GSWSA Inventory Project properly evaluates the quality of the project, so to properly reassure the prowess of the new SQL Server database. The configuration of the testing stage of the GSWSA Inventory Project is set to be planned in the GSWSA TP, laided out in the GSWSA Test Descriptions, and reported in the GSWSA Reports. The configurations of the test committed are meant to only test the software produced such as features and database internals, as the authors of this project are not authorized to know the hardware that the software will be executed on. The GSWSA TP will regression test using test cases that have yielded bugs, core features, and recent database patches. The regression testing will be based on the severity of defects detected. Any element determined “unstable” or “do not make sense” will be processed by. Any test failed will be documented in the test reports log section and is expected to be addressed and patched in the time between failures. The GSWSA TP has few constraints due to manual testing being used these constraints are mostly time related due to each test needing to be completely hard-coded and non-automated and are also constrained due to lack of project members and close-ended deadlines set for December fourth, twenty-twenty. It is advised that when testing the GSWSA Inventory Project that each test is set to return a proper Boolean return statement to evaluate the proper result of the test. There will be no special testing requirements for the GSWSA Inventory Project.

# Item Pass/Fail Criteria

The completion criteria for this GSWSA TP is for all documented test cases to be successfully completed. For a test item to be considered passing it must return a Boolean “true” value. The testing of the GSWSA will not be considered complete until all specified test items are confirmed to be successful in execution. The test coverage of the project spans over all testable system features and database integrity. If a test fails for any reason then it must be noted, reviewed, logged, and promptly corrected at the source of the error once immediately identified. The only failed test exception to be permitted is a test that results in an error due to a defect in the SQL server software itself. All test results can be reviewed inside the GSWSA Test Report document.

# Suspension Criteria and Resumption Requirements

Testing of the GSWSA Inventory Project is authorized to suspend testing when a single test is returned as a Boolean “false” meaning the said test failed. Any test failed must be properly logged in the GSWSA Report document and subsequently the source of the failure must be reviewed and corrected by the system developers until a passing Boolean “true” value is returned. The only exception to allow defects past the testing stage of the GSWSA Inventory Project is an error within the SQL server software. Any other defect is expected to be logged, reviewed, and fixed as stated in the “Item Pass/Fail Criteria” section. The test will remain the same and use regression testing to review if the code has been properly patched. The impacts of regression testing may make “fixing” the system longer due to manual testing of each functionality to ensure the project integrity is not damaged but this methodology does ensure the database patches do not create more harmful consequences. After the code is reviewed and deemed patched testing may resume until completed or another error occurs.

# Test Deliverables

The GSWSA TP will be set to deliver the following:

* Test plan
* Test case specifications
* Test item transmittal reports
* Test logs

# Test Tasks

* Test plan
  + Lay out the project scope
  + Identify failure conditions
  + Identify passing conditions
  + Identify coverage of project
  + Verify what will be tested
* Test case specifications
  + Identify what each test returns
  + Identify what a case covers
  + Describe why case is being evaluated
* Test item transmittal reports
  + Show reports of test item
  + Identify which item is being tested
* Test logs
  + Log every test regardless of fail or pass
  + Add comments for additional information
  + Show results of the evaluated test

# Environmental Needs

There is little to few special requirements to execute the GSWSA Inventory testing. The only special software needed is SQL server management studio to execute the queries for the GSWSA database and execute the manual test files. The hardware needed is any standard PC that meets the minimum requirements to run the required software.

# Responsibilities

Developer Nathan Marshall is in charge of the overall strategy for this level of plan in the GSWSA TP, the setting of risks for each feature, selecting each test item to be evaluated, ensuring all elements are ready for testing, deciding critical go- or no-go situations, and for delivering each item in the “Test Items” section. GSWSA intern Robert Johnson is in charge of providing required training for the GSWSA Inventory Project and all documents/code edited. Professor Paul Cerkez is in charge of insuring proper quality of documents provided.

# Staffing and Training Needs

To be able to work on the GSWSA TP all editors and coders must be trained to understand advanced coding in SQL server management studio and must read over all prior and current documentation of the GSWSA Inventory Project. It is critical that all editors and coders understand concurrent information technology terminology to properly comprehend the project. It is also crucial that all editors/coders understand how to manually unit test and understand how to report a unit test in SQL server.

# Schedule

|  |  |
| --- | --- |
| **File Name** | **Expected date** |
| **GSWSA Test Plan** | **11/15/2020** |
| **GSWSA Test Descriptions** | **11/15/2020** |

All dates listed are subject to change in the event of a disaster or unforeseen circumstance approved by Professor Paul Cerkez.

# Risks and Contingencies

There are multiple potential risks to the project within the testing process, this section lists multiple possible risks along with our contingency plan in relation to the associated risks.

|  |  |
| --- | --- |
| **Potential Risk** | **Contingency** |
| Improper script used for test | In the event a script is not complete or is not returning the proper result during testing, immediate work will take place to ensure the optimal script is created to be retested during this process. |
| Changes to project requirements occur | New revisions of project documents will be made in addition to any applicable adjustments of code-based deliverables. Additionally, once the revisions are made retesting will occur in the even they are necessary. |
| Late presentation of deliverables | In the event of project deliverables being late, project members will work to ensure the deliverables are sent as soon as possible with immediate notification to project stakeholders. Project team members will seek to coordinate and ensure that these deliverables meet the designated requirements and are sent to the specified recipient. |

# Approvals

This project is a master plan. This means all parties involved must approve before the GSWSA TP can be considered completed. The parties involved are as listed: Professor Paul Cerkez, GSWSA intern Robert Johnson, and author Nathan Tyler Marshall. The final approval and revision will be determined by Professor Paul Cerkez.