1. Introduction

This document outlines the testing strategy for the Data Warehouse and Business Intelligence (DW/BI) project. The purpose of this strategy is to ensure the accuracy, completeness, integrity, and performance of the data being stored, processed, and reported through the DWH system.

2. Objective

To establish a clear and comprehensive approach to testing all data processes within the Data Warehouse system. This includes data extraction, transformation, loading (ETL), and reporting components.

3. Scope

The testing process covers the following areas:

* Source data validation
* ETL process validation
* Data consistency and integrity
* Report accuracy and completeness
* Performance and load testing

4. Testing Types

4.1. Unit Testing

Performed on individual ETL components to ensure transformations are applied correctly.

4.2. Integration Testing

Verifies end-to-end data flow from source systems through the staging and integration layers to final reporting.

4.3. System Testing

Comprehensive checks across the entire DWH platform.

4.4. Regression Testing

Executed after changes or enhancements to validate the system's existing functionality remains intact.

4.5. Performance Testing

Evaluates query execution time, ETL load times, and report generation efficiency under expected workloads.

5. Testing Tools

* SQL Developer / pgAdmin (for query validation)
* Apache JMeter (for load testing)
* Excel / Python (for source vs. target data comparison)
* Jira / TestRail (for defect tracking and test case management)

6. Entry and Exit Criteria

Entry Criteria

* All development tasks are complete.
* Test data is available and prepared.
* Environment is stable and accessible.

Exit Criteria

* All critical and high-severity defects are resolved.
* Test cases are executed with ≥95% pass rate.
* Test summary report is approved.

7. Roles and Responsibilities

| Role | Responsibility |
| --- | --- |
| Test Lead | Test planning, team coordination, final approval |
| Test Engineer | Test case creation and execution |
| BI Analyst | Business rules verification |
| Developer | Fixing defects and supporting testing |

8. Risks and Mitigation

| Risk | Mitigation Strategy |
| --- | --- |
| Incomplete source data | Early coordination with source system owners |
| Changes in ETL mapping | Change request control process |
| Environment instability | Backup and rollback plans |

9. Deliverables

* Test Strategy document
* Test cases and test data
* Defect log
* Test Result Report

10. Schedule

| Phase | Start Date | End Date |
| --- | --- | --- |
| Test Planning | March 3 | March 5 |
| Test Design | March 6 | March 10 |
| Test Execution | March 11 | March 17 |
| Reporting | March 18 | March 20 |