Integration and Testing Document

1. Integration

1.1 Overview

Integration involves importing data from your relational database into Microsoft Excel, ensuring data consistency, and creating an interactive dashboard.

1.2 Importing Data from Database to Excel

Step 1: Establish Connection

1. Open Excel.

2. Navigate to the “Data” tab.

3. Click on “Get Data” or “From Database” depending on your Excel version.

4. Choose “From SQL Server Database” or “From Other Sources” if using a different database type.

Step 2: Connect to the Database

1. Enter the server name and database name where your data is stored.

2. Click “OK” or “Connect.”

3. If prompted, enter the necessary credentials (username and password).

Step 3: Import Data

1. Select the tables or views you wish to import.

2. Click “Load” to import the data into Excel.

3. Excel will create a data connection and load the data into a new worksheet.

1.3 Data Consistency

Step 1: Verify Data Accuracy

1. Compare the imported data with the original data in the database.

2. Check key fields (e.g., IDs, dates) for consistency and completeness.

Step 2: Refresh Data

1. Set up data refresh options to ensure your Excel workbook is updated with the latest data from the database.

2. Go to the “Data” tab, click on “Queries & Connections,” and configure the refresh settings.

2. Testing

2.1 Test Data Integrity

Test Case 1: Data Accuracy

- Objective: Ensure the data imported into Excel matches the database.

- Steps:

1. Compare a sample of records from Excel with the database.

2. Verify field values, including numeric, text, and date fields.

- Expected Result: All records should match between Excel and the database.

Test Case 2: Data Completeness

- Objective: Confirm that all expected records are imported.

- Steps:

1. Check record counts in both the database and Excel.

2. Ensure all relevant tables/views are imported.

- Expected Result: Record counts should match, and all relevant data should be present.

2.2 Test Data Refresh

Test Case 3: Data Refresh Functionality

- Objective: Ensure data refresh works as intended.

- Steps:

1. Modify data in the database.

2. Refresh the data in Excel.

3. Verify that the updated data appears in Excel.

- Expected Result: Changes in the database should be reflected in the Excel workbook after refresh.

Test Case 4: Scheduled Refresh

- Objective: Validate scheduled data refresh.

- Steps:

1. Configure a scheduled refresh for the data connection.

2. Wait for the scheduled time and check if data is updated automatically.

- Expected Result: Data should be refreshed according to the schedule.

3. Troubleshooting

Issue 1: Connection Errors

Problem: Unable to connect to the database.

- Possible Causes:

1. Incorrect server/database name or credentials.

2. Network issues.

3. Database server is down.

Solutions:

1. Verify the server name, database name, and credentials.

2. Check network connectivity and ensure the database server is accessible.

3. Contact your database administrator if the server is down.

Issue 2: Data Mismatch

Problem: Data in Excel does not match the database.

- Possible Causes:

1. Data import errors.

2. Inconsistent database queries.

Solutions:

1. Re-import the data and verify import settings.

2. Ensure that the SQL queries used for data import are correct and complete.

Issue 3: Data Refresh Failures

Problem: Data refresh fails or is incomplete.

- Possible Causes:

1. Connection issues.

2. Query errors.

3. Large data volumes.

Solutions:

1. Check data connection settings and network stability.

2. Review and correct any errors in SQL queries.

3. Optimize data queries and consider breaking down large data sets.

Issue 4: Performance Issues

Problem: Slow performance or large file sizes.

- Possible Causes:

1. Large data volumes.

2. Complex queries or calculations.

Solutions:

1. Use filters and limit data imported into Excel to relevant records.

2. Optimize SQL queries and calculations in Excel.