# **Data Warehouse & BI Testing**

## **Section 1 – Smoke Tests**

Quick checks to confirm the environment and ETL are working.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case Title** | **Preconditions** | **Steps** | **Expected Result** | **DQ Dimension** |
| Check table existence in DWH | ETL job has run at least once | Run SELECT COUNT(\*) FROM DWH\_CLIENTS | Table exists and returns a valid row count | Completeness |
| Validate daily ETL job execution | Scheduler is configured | Run daily ETL, review job log | ETL finishes successfully, records loaded > 0 | Timeliness |
| Verify mandatory columns are loaded | Source files are present in Landing | Compare Landing vs. DWH column list for CLIENTS table | All mandatory columns are present in DWH | Completeness |

## **Section 2 – Critical Path Tests**

Core business rules and transformations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case Title** | **Preconditions** | **Steps** | **Expected Result** | **DQ Dimension** |
| Client phone transformation (S2 → DWH) | Client data from S2 available in Landing | Load data, query DWH\_CLIENTS.PHONE\_NUMBER | Value = `PHONE\_CODE |  |
| First purchase date mapping | Source column FIRST\_PURCHASE available | Run ETL, check DWH\_CLIENTS.FIRST\_PURCHASE\_DATE | Value matches source FIRST\_PURCHASE | Accuracy |
| Total cost calculation in DM | SALES and PRODUCTS data available in DWH | Query DM\_MAIN\_DASHBOARD for TOTAL\_COST | TOTAL\_COST = QUANTITY \* PRODUCT\_COST | Accuracy |
| Validity of client status flag (IS\_VALID) | VALID\_TO values available in sources | Run ETL, check DWH\_CLIENTS.IS\_VALID | If VALID\_TO > 2021-01-20 → Y, else N | Validity |

## **Section 3 – Extended Path Tests**

Additional, edge-case, and data quality checks.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case Title** | **Preconditions** | **Steps** | **Expected Result** | **DQ Dimension** |
| Check duplicate VINs in car data | Car data loaded into DWH\_CARS | Run SELECT VIN, COUNT(\*) FROM DWH\_CARS GROUP BY VIN HAVING COUNT(\*) > 1 | No VIN should appear more than once | Uniqueness |
| Boundary test on SALE\_DATE | Ability to insert test record | Insert a sale record with a future date (e.g., 2100-01-01) | Record rejected or flagged as invalid | Validity |
| Missing value handling | Source contains NULL emails | Load data into DWH\_CLIENTS | EMAIL column cannot be NULL; records either dropped or fixed | Completeness |
| Performance of ETL with big load | Large test dataset available | Run ETL with dataset > 1M records | ETL finishes within SLA (e.g., < 1 hour) | Timeliness |

# **Conclusion**

This set of test cases covers **Smoke**, **Critical Path**, and **Extended Path** testing of the DWBI solution. Each case is mapped to one or more **Data Quality dimensions** (accuracy, completeness, consistency, timeliness, uniqueness, validity), ensuring a structured and realistic QA approach.