# Automated Testing

**Utils**

* Functions, UDFs

**Bronze Zone**

* Ingestion Tests
* Schema Validation & Evolution Tests

**Silver Zone**

* Filter Criteria Tests
* Data Cleansing Tests
* Deduplication Tests

**Gold Zone**

* Filter Criteria Silver Integration Test
* Explode Silver Integration Test

**BI Tool - Data Load**

* Compare data exported from Data Prep Tool to Spark SQL queries
  + Row Counts Before Joins/Window/Group By
  + Key Counts and results after Joins/Window/Group By

**BI Tool - Visuals**

* Compare data exported from Visuals to Spark SQL queries

# Manual Testing

**Bronze Zone**

* Manually look at Raw Files in Data Lake to determine the Schema

**Silver Zone**

* Manually look at Bronze/Raw Files in Data Lake to determine the Unique Key
* Manually look at Bronze/Raw Files in Data Lake to determine the Filter Criteria
* Manually look at Bronze/Raw Files in Data Lake to determine non-nullable/error prone fields
* Manually check Partition Pruning for Delta Merge

**Gold Zone**

* Manually look at Filter Criteria between Silver and Gold
* Manually look at Generated Fields (Distinct Queries)

**BI Tool Visuals**

* Check slicer configuration
* Check all measures and visuals manually
  + Check Unique Keys for "single line" type measures
* Check actions/triggers