Mapping Process Documentation

Objective:

The objective of this documentation is to provide a detailed explanation of the data mapping process involved in integrating consumer data from ABC Utility Company's databases into the SMART360 platform. The process includes extracting, transforming, and loading the data, as well as validating the results.

1. Data Extraction:

- Source: ABC Utility Company's database

- Data Extracted: Consumer ID, Name, Address, Contact Number, Email Address, Account Number, Meter Number, Tariff Plan, Consumption History, Payment Status

2. Data Mapping and Transformation:

- Mapping Fields:

- Consumer ID: Directly mapped to Consumer ID in the SMART360 Consumer table.

- Name: Split into First Name and Last Name.

- Address: Parsed into Address Line 1, Address Line 2, City, State, and Zip Code.

- Contact Number: Renamed to Phone Number.

- Email Address: Directly mapped to Email Address.

- Account Number, Meter Number, Tariff Plan, Consumption History, Payment Status: Additional fields in SMART360 Consumer table, mapped accordingly.

- Data Transformation:

- Splitting Name into First Name and Last Name using string manipulation.

- Parsing Address into its components (Address Line 1, Address Line 2, City, State, Zip Code).

- Renaming Contact Number to Phone Number.

3. Loading Mapped Data into SMART360 Consumer Table:

- Target Table: SMART360\_Consumer

- Fields Loaded: Consumer ID, First Name, Last Name, Address Line 1, Address Line 2, City, State, Zip Code, Phone Number, Email Address, Account Number, Meter Number, Tariff Plan, Consumption History, Payment Status

- Method: Data loaded into the target database using SQLAlchemy.

4. Validation and Testing:

- Validation Procedure:

- Data from the target table (SMART360\_Consumer) was read and compared against the expected results.

- Ensured that all fields were correctly mapped and transformed.

- Checked for data consistency, integrity, and completeness.

- Testing Procedure:

- Script tested with sample data to ensure accuracy and correctness.

- Various scenarios and edge cases were considered during testing.

- End-to-end testing performed to verify the entire mapping process.

5. Results:

- The mapping process successfully integrated consumer data from ABC Utility Company's databases into the SMART360 platform.

- All fields were accurately mapped and transformed as per the defined mapping plan.

- Data validation confirmed the accuracy, consistency, and completeness of the integrated data.

- Testing ensured the reliability and robustness of the Python script for automated mapping.

Conclusion:

The data mapping process provided a seamless integration of consumer data into the SMART360 platform, enhancing data management efficiency and operational workflows for ABC Utility Company. The detailed documentation ensures transparency and clarity in understanding the mapping process and its outcomes.