Eyob Demissie

May 2021

QuickenLoan Pahse II Summary Report

Data Warehouse

What we tried to achieve on 2nd phase of Project is that, to organize and consolidate data received from heterogeneous source to be utilized as an input for analytical reporting and on time decision making.

Logical Model is designed using Oracle SQL Developer Data Modeler and information about all entities and the relationship they have with the fact table is built.

Star schema modeling approach is adopted, and dimensions tables are made to have a direct tie with fact table by primary /foreign key relationship.

Overall objectives of Data Warehouse and, mapping between business process and all dimension tables is presented in detail by using Bus Matrix.

Dimension tables consist textual and descriptive values. Each dimension table is referring respective synonym and calling respective view created inside Database.

Data transformation (Converting data from legacy format to Datawarehouse format) and cleansing (Null Handling, deletion of duplicate characters) is done before loading all dimension tables by using stored procedure.

Each dimension table is designed to very lowest detail and hashed to have its own granularity. Surrogate keys in each dimension table serves as primary key.

Time dimension is based on standard calendar year and it contains hierarchy elements to the lowest granularity for fact table.

As per the requirement of the business, Slowly Changing dimension (SCD) which is Type 3, is implemented on dimension table. Both, original and latest attribute values are retained with effective date.

Upsert operation is included in stored procedure to load dimension tables and compares source data to the data already in and perform either update or insert depending on the result set. After upsert operation is completed, respective columns of UpdateInsertLog table in SQL Database, get updated accordingly.

All dimension tables have Try/Catch block inside their stored Procedure enhancing error handling and made to update ErrorLog table with corresponding error code and description.

Fact Table consists of additive, semi-additive and non-additive measures and it is related with all dimension tables by using foreign key. It consists of surrogate keys as primary key, measure columns and foreign keys which link fact with all dimension tables. Fact table is populated with the help of stored procedure which resulted from multiple join statements between all dimension tables with staging table.

Diagram, schematic

Description automatically generated