**Data Warehouse Project**

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**Introduction**

This document provides an overview of the data warehouse design, including its schema, key decisions, and structure. The project aims to optimize data storage and processing for call and employee-related analytics. The following sections break down the different layers, tables, and the rationale behind their design choices.

**Data Warehouse Schema**

The project is based on several tables divided into different layers:

1. **Transactional Source (STA)**: Contains raw data.
2. **Operational Data Store (ODS)**: Intermediate structure before transformation.
3. **Data Warehouse (DWH)**: Optimized storage of data for analysis.
4. **Administration (ADM)**: Management of technical and functional rejections.

**Tables and Structures**

**1. Transactional Source (STA)**

* **UsStates**: US states (Code, Name, Region)
* **Employees**: Employee information (ID, Name, Site, Manager)
* **CallTypes**: Call types (ID, Label)
* **CallData**: Call details (Date, Type, Employee, Duration, Wait Time, Abandonment)
* **CallCharges**: Call charges per year

### 2. ODS (Operational Data Store)

• **Employees**: Enhanced employee version with location (ID, Name, Manager, Site, State, Region)  
• **CallTypes**: Call types (ID, Label)  
• **CallCharges**: Rates with type identification (CallType, CallTypeID, Year, Rate)  
• **CallData**: Call history, with SLA (Time, Date, Year, CallType, EmployeeID, Duration, WaitTime, CallAbandoned, SLAStatus)

**3. Data Warehouse (DWH)**

• **DWH\_D Employees**: Dimension table with employee details (EmployeeId, EmployeeName, ManagerName, City, StateName, Region), using EmployeeKey as the technical key.  
• **DWH\_D CallTypes**: Dimension table for call types (CallTypeID, CallTypeLabel), using CallTypeKey as the technical key.  
• **DWH\_D CallCharges**: Dimension table storing call charges (CallType, CallTypeID, Year, Rate), using CallChargeKey as the technical key.  
• **DWH\_F CallData**: Fact table for storing call data (EmployeeKey, CallTypeKey, CallDuration, DateKey, CallDuration, WaitTime, CallAbandoned, SLAStatus), linked to other dimension tables.  
• **DWH DimDate**: Date dimension table to make time-based analysis easier (DateKey, Date, Year, Month, Week).

### 4. Administration (ADM)

• **TechnicalRejects**: Technical rejections (Date, Step, Message, Column).  
• **FunctionalRejects**: Functional rejections (Total, Date, Step, Message, Column).

**Key Decisions**

• **DimDate Table**: Included a date table to make time-related analysis easier.  
• **Rejection Handling**: Managed rejections to ensure data quality.  
• **Data Normalization**: Reduced data duplication and improved performance through normalization.  
• **Use of foreach**: Used the foreach loop to efficiently process and insert data into the database.