SDB: Scheme Documentation

1. Objective

The objective is to develop a system that fetches eligible scheme data for a specified month and year and fetches four years of sales data for accounts (dealers, contractors, etc.) based on account type and sales category. The system will process the schemes within the specified time period and will filter the sales data for the last four years based on account types, sales categories, and relevant filters. The final output will be a report of eligible accounts and their respective sales data, considering the conditions provided in the schemes.

2. Key Functional Requirements

2.1 Fetch Eligible Schemes for a Given Month and Year

The system should accept a month and year (e.g., January 2025) as input.

- Based on the month and year provided, the system will fetch the schemes from the scheme_master table that are active or eligible for that period.
- A scheme will be considered eligible if the **scheme's start date** and **scheme end date** overlap with the selected month and year.

2.2 Account Filters

2.2.1 Account Type Filter:

- Based on the scheme's account type (e.g., Dealer, Sub Dealer, Contractor, etc.), the system will fetch the relevant account IDs from the dealer_master table.
- If no specific account type is selected, all account IDs from the dealer_master will be considered.

2.2.2 State Filter (Optional):

- If a state filter is applied, only accounts from the selected state will be fetched.
- If no state is selected, accounts from all states will be considered.

2.3 Sales Type and Item Filters

2.3.1 Sales Type Filter:

- The system will filter the schemes based on sales type (Normal, NOD, or Pure NOD).
- Sales type information will be checked for each account, and only those that match the selected sales type will be included.

2.3.2 Item Type Filter:

- The system will filter the schemes based on item type (e.g., TMT only, Wires, Other materials).
- Only accounts that have sales data for the specified items will be included.

2.4 Sales Data Fetching

2.4.1 Fetch Sales Data for the Last Four Years:

- Once the eligible account IDs are identified, the system will query the sales data for these accounts for the last four years, considering the **account type** and **sales category** (e.g., Normal, NOD, Pure NOD).
- The sales data should include monthly sales totals for each account, which will be filtered based on the items and sales type criteria.

2.5 Report Generation

A report will be generated that includes the following:

- Account details (ID, name, type, etc.)
- Relevant schemes the account is eligible for
- Monthly sales data for the last four years
- Item eligibility (TMT, Wires, etc.)
- Sales type (Normal, NOD, Pure NOD)

3. Further Non-Functional Requirements to be Considered

3.1 Performance Optimization:

- The system should be able to handle large volumes of data efficiently, including thousands of accounts and sales data over multiple years.
- Queries involving large datasets, such as fetching sales data for multiple schemes and accounts, should be optimized to avoid long query execution times.

3.2 Data Accuracy:

- The data retrieved must be accurate and consistent with the sales records, scheme details, and account details.
- Any discrepancies between the schemes stored in scheme_master and the sales data from the dealer_master or sales_data tables should be flagged.

3.3 Scalability:

- The system should be scalable to handle an increasing number of schemes, account types, and sales data over time.

4. DB Structure Analysis

4.1 scheme_master Table:

This table contains all the details about the schemes, including:

- Scheme ID
- Scheme Name
- Start Date
- End Date
- Scheme Type (Annual, Quarterly, Monthly, etc.)
- Account Type (Dealer, Sub Dealer, Contractor, etc.)
- Sales Type (Normal, NOD, Pure NOD)
- Items (TMT, Wires, Other materials)
- Scheme Details/Benefits (e.g., slabs, points)

4.2 dealer_master Table:

This table contains details about the accounts:

- Account ID
- Account Name
- Account Type (Dealer, Sub Dealer, Contractor, etc.)
- State
- Other Account Information (as needed

4.3 sales_data Table:

This table contains the sales data for each account:

- Sales ID
- Account ID (Foreign Key)
- Sales Date
- Sales Type (Normal, NOD, Pure NOD)
- Item Type (e.g., TMT, Wires, etc.)
- Sales Amount
- Other Sales Information

5. Optimizations

To optimize the process of fetching sales data for large datasets:

5.1 Precompute Sales Data:

- Need to maintain a precomputed view or summary table that stores monthly or quarterly sales totals for each account, categorized by item type and sales type.
- This will reduce the need to query the entire sales_data table every time and improve query performance.

5.2 Indexes and Query Optimization:

- Utilize indexes on critical fields such as account_type_id, sales_category, item_type, sales_date, and scheme_date to speed up the querying process.

6. Process Flow

6.1 User Inputs:

- The user will input the month and year for the report (e.g., January 2024).
- The user can also specify optional filters such as account type, state, sales type, and item type.

6.2 Fetch Eligible Scheme Data:

- The system fetches schemes from the scheme_master table based on the selected month, year, and any applicable filters.

6.3 Fetch Account IDs:

- Based on the scheme's account type and other filters (state, sales type), the system fetches the relevant account IDs from the dealer_master table.

6.4 Fetch Sales Data for the Last Four Years:

- For each selected account, the system fetches the sales data from the sales_data table for the last four years for all states ROI.

6.5 Generate Report:

- The final report is generated, showing the schemes based on the set date, past 4 yr sales data for entire ROI.

7. Conclusion

The system will be designed to fetch relevant schemes (In progress/already happened) based on a user-defined month and year (start and end date) and then fetch sales data for the last four years for entire ROI from the selected month-year. Various filters, such as

account type, sales type, and item type, will be applied to identify eligible accounts. The final report will provide a detailed breakdown of eligible accounts and their respective sales data. Optimizations, such as precomputing sales data and indexing, will be essential to ensure the system performs efficiently with large datasets.