*NBFC Data warehouse dimensions and fact table example*

**Designing a data warehouse for a Non-Banking Financial Company (NBFC) involves creating a schema that captures key business processes, such as loan disbursements, collections, customer details, etc. This schema typically consists of fact tables (which store measurable business transactions) and dimension tables (which store descriptive attributes related to those transactions).**

**Example Schema for an NBFC Data Warehouse**

**1. Fact Tables**

**Fact tables are central to the star schema in a data warehouse. They contain metrics or measures related to business processes and are usually joined with dimension tables.**

* **Fact\_LoanDisbursement:**
  + **Purpose: Stores details about loan disbursements.**
  + **Columns:**
    - **LoanDisbursement\_Key (Primary Key)**
    - **Loan\_ID (Foreign Key to Loan Dimension)**
    - **Customer\_Key (Foreign Key to Customer Dimension)**
    - **Product\_Key (Foreign Key to Product Dimension)**
    - **Branch\_Key (Foreign Key to Branch Dimension)**
    - **Date\_Key (Foreign Key to Date Dimension)**
    - **Loan\_Amount (Measure)**
    - **Interest\_Rate (Measure)**
    - **Tenure (Measure)**
    - **Disbursement\_Amount (Measure)**
    - **Disbursement\_Date (Measure)**
* **Fact\_LoanRepayment:**
  + **Purpose: Captures information related to loan repayments.**
  + **Columns:**
    - **LoanRepayment\_Key (Primary Key)**
    - **Loan\_ID (Foreign Key to Loan Dimension)**
    - **Customer\_Key (Foreign Key to Customer Dimension)**
    - **Product\_Key (Foreign Key to Product Dimension)**
    - **Branch\_Key (Foreign Key to Branch Dimension)**
    - **Date\_Key (Foreign Key to Date Dimension)**
    - **Repayment\_Amount (Measure)**
    - **Repayment\_Date (Measure)**
    - **Interest\_Paid (Measure)**
    - **Principal\_Paid (Measure)**
    - **Outstanding\_Balance (Measure)**
* **Fact\_CustomerInteraction:**
  + **Purpose: Records interactions between the NBFC and its customers (e.g., calls, visits).**
  + **Columns:**
    - **CustomerInteraction\_Key (Primary Key)**
    - **Customer\_Key (Foreign Key to Customer Dimension)**
    - **Employee\_Key (Foreign Key to Employee Dimension)**
    - **Branch\_Key (Foreign Key to Branch Dimension)**
    - **Date\_Key (Foreign Key to Date Dimension)**
    - **Interaction\_Type (Measure - Call, Visit, Email)**
    - **Interaction\_Outcome (Measure)**
    - **Interaction\_Duration (Measure)**

**2. Dimension Tables**

**Dimension tables provide the context (attributes) for the facts in the fact tables. They are usually denormalized and contain descriptive attributes.**

* **Dim\_Customer:**
  + **Purpose: Stores customer-related information.**
  + **Columns:**
    - **Customer\_Key (Primary Key)**
    - **Customer\_ID**
    - **Customer\_Name**
    - **Date\_of\_Birth**
    - **Gender**
    - **Marital\_Status**
    - **Occupation**
    - **Income\_Bracket**
    - **Address**
    - **City**
    - **State**
    - **Country**
    - **Phone\_Number**
    - **Email\_Address**
    - **Customer\_Segment (e.g., Retail, SME)**
* **Dim\_Loan:**
  + **Purpose: Stores information about loans.**
  + **Columns:**
    - **Loan\_Key (Primary Key)**
    - **Loan\_ID**
    - **Loan\_Type (e.g., Personal Loan, Home Loan, Vehicle Loan)**
    - **Loan\_Product**
    - **Loan\_Tenure**
    - **Interest\_Rate**
    - **Collateral\_Type**
    - **Loan\_Status (e.g., Active, Closed, Defaulted)**
* **Dim\_Product:**
  + **Purpose: Contains details about financial products offered.**
  + **Columns:**
    - **Product\_Key (Primary Key)**
    - **Product\_ID**
    - **Product\_Name**
    - **Product\_Type (e.g., Loan, Insurance, Savings)**
    - **Product\_Category (e.g., Secured, Unsecured)**
    - **Product\_Description**
* **Dim\_Branch:**
  + **Purpose: Stores branch-specific information.**
  + **Columns:**
    - **Branch\_Key (Primary Key)**
    - **Branch\_ID**
    - **Branch\_Name**
    - **Branch\_Manager**
    - **Branch\_Location**
    - **Branch\_Region**
* **Dim\_Date:**
  + **Purpose: Standard date dimension table for tracking time-related aspects.**
  + **Columns:**
    - **Date\_Key (Primary Key)**
    - **Date**
    - **Day**
    - **Month**
    - **Quarter**
    - **Year**
    - **Weekday**
    - **Fiscal\_Year**
    - **Is\_Holiday**
* **Dim\_Employee:**
  + **Purpose: Stores employee details for tracking interactions, loan approvals, etc.**
  + **Columns:**
    - **Employee\_Key (Primary Key)**
    - **Employee\_ID**
    - **Employee\_Name**
    - **Employee\_Role (e.g., Loan Officer, Branch Manager)**
    - **Department**
    - **Branch\_Key (Foreign Key to Branch Dimension)**
    - **Hire\_Date**
    - **Phone\_Number**
    - **Email\_Address**

**Usage Example**

* **A report on loan disbursements might join the Fact\_LoanDisbursement with Dim\_Customer, Dim\_Loan, Dim\_Branch, Dim\_Date, and Dim\_Product to provide insights like total loan amounts disbursed by branch, product type, or customer segment over time.**
* **A dashboard could display overdue loans by joining Fact\_LoanRepayment with Dim\_Customer and Dim\_Loan, helping risk managers focus on high-risk customers.**

**This schema helps NBFCs organize and analyze their data effectively, leading to better decision-making and operational efficiency.**