Data Model Documentation

1. Tables Used

Since this project uses a **single flat file dataset**, the model contains:

Table: Market Sales Data

Columns included:

- State

- District

- Market

- Commodity

- Variety

- Grade

- Arrival_Date

- Min_Price

- Max_Price

- Modal_Price

- Commodity_Code

This table contains all transaction-level price data for Kerala markets.

2. Relationships

This project uses **only one table**, so:

- **No relationships are created** in the data model.

- The model behaves as a **single fact table**.

- All calculations are performed using DAX measures directly on this table.

If additional lookup tables (Calendar, Commodity Dimension) are added later, relationships may be defined.

3. Key Calculations / Measures

Price Measures

- **Total Min Price**
  `SUM(Market Sales Data[Min Price])`

- **Total Max Price**
  `SUM(Market Sales Data[Max Price])`

- **Total Modal Price**
  `SUM(Market Sales Data[Modal Price])`

- **Average Modal Price**
  `AVERAGE(Market Sales Data[Modal_Price])`

- **Avg Price by Commodity**
  `CALCULATE(AVERAGE(Market Sales Data[Modal_Price]),`
  `ALLEXCEPT(Market Sales Data, Market Sales Data[Commodity]))`

- **Latest Modal Price**
  Returns average modal price on the latest arrival date.

- **Price Difference**
  `SUM(Max Price) - SUM(Min Price)`

- **Price Volatility %**
  `(Max - Min) / Modal`

Count Measures

- **Total Markets**
  `DISTINCTCOUNT(Market)`

- **Total Commodities**
  `DISTINCTCOUNT(Commodity)`

- **Total Records**
  `COUNTROWS(Market Sales Data)`

Ranking & User Selection Measures

- **Rank Commodity**
  RANKX based on average modal price.

- **Selected Commodity Price**
  Average modal price respecting slicer context.

- **Selected Market Min Price**
  Returns minimum price based on current slicer filters.

4. Notes / Assumptions

- **Modal Price** is used as the primary benchmark, as it represents the most traded price in the market.

- Arrival_Date is assumed to be **clean and in date format**.

- Commodity, Market, Grade, and Variety columns have **categorical variations**, which may require standardization during cleaning.

- No external dimension tables (Date, Commodity, Market) are used.

- The model can be expanded into a **star schema** in future (recommended for production dashboards).

5. Data Model Diagram

Since this project uses a **single-table model**, the diagram is simple:

```
┌─────────────────────────────┐
│        Market Sales Data    │
│─────────────────────────────│
│ State                       │
│ District                    │
│ Market                      │
│ Commodity                   │
│ Variety                     │
│ Grade                       │
│ Arrival_Date                │
│ Min_Price                   │
│ Max_Price                   │
│ Modal_Price                 │
│ Commodity_Code              │
└─────────────────────────────┘
   (No Relationships)
```