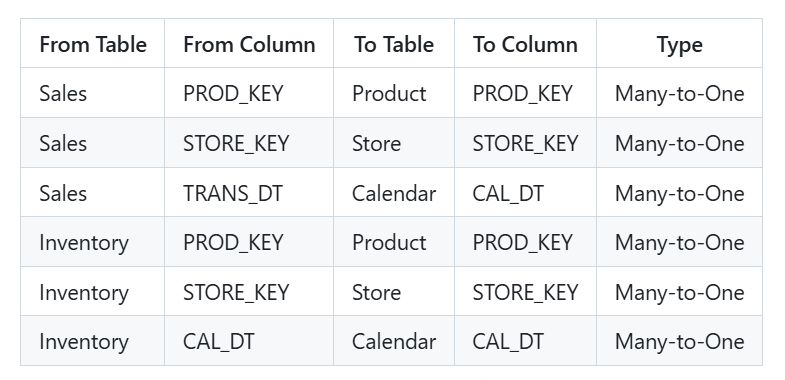
## **Data Model & Table Relationships**

Tables and Keys

* **Product**: PROD\_KEY (Primary Key)
* **Store**: STORE\_KEY (Primary Key)
* **Sales**: TRANS\_ID (PK), PROD\_KEY (FK), STORE\_KEY (FK)
* **Inventory**: CAL\_DT (FK), STORE\_KEY (FK), PROD\_KEY (FK)
* **Calendar**: CAL\_DT (PK)

Relationships



**Note**:

Sales is the Fact Table (transactions).

Inventory is another Fact Table (snapshot of stock/waste, etc.).

Product, Store, Calendar are Dimension Tables.

Star Schema: Both Sales and Inventory connect to Product, Store, and Calendar.

## **Import Data**

Load all 5 tables into Power BI.

* In the Model View, create 1-to-many relationships as specified above.
* Make sure all foreign keys are of matching data types.
* Cardinality: Each relationship should be Many-to-One (from Fact to Dimension).

## **Data Cleaning and Preparation**

* Format dates (ensure TRANS\_DT and CAL\_DT are Date type).
* Change the Store\_key, Prod\_key to text type.
* Create calculated columns/measures as needed.

## **PowerBI Report**

### Main Page

* **KPIs**:
  + Total Sales (`SALES\_AMT`)
  + Total Units Sold (`SALES\_QTY`)
  + Total Margin (`SALES\_MGRN`)
  + Inventory on Hand (`INVENTORY\_ON\_HAND\_QTY`)
* **Sales Trend**: Line chart (xaxis: `CAL\_DT` from Calendar; yaxis: `SALES\_AMT`)
* **Sales by Store**: Map or filled map (Location: `REGION`/`STORE\_DESC`; Value: `SALES\_AMT`)
* **Top 5 Products by Sales**: Bar/column chart (`PROD\_NAME` vs. `SALES\_AMT`)
* **Slicers**: Year, City,
* **Drillthrough Targets**:
  + Product Details
  + Store Details

### Product Details

Drillthrough Field: `PROD\_KEY` (Product)

* **KPI**:
  + Selected Product’s Total Sales
  + Selected Product’s Total Units Sold
  + Selected Product’s Total Margin
* **Sales Trend**: Line chart `CAL\_DT` vs. `SALES\_AMT` (filtered for the selected product)
* **Sales by Store**: Line chart (`STORE\_DESC` vs. `SALES\_AMT`)
* **Out of Stock Events**: Table (`CAL\_DT`, `OUT\_OF\_STOCK\_FLG`)
* **Product Attributes**: Table (`PROD\_NAME`, ` PROD\_KEY`, `CATEGORY\_NAME`, `SUBCATEGORY\_NAME`, `STATUS\_CODE `)
* **Slicers**: Category, Sub category

### Store Details

Drillthrough Field: `STORE\_KEY` (Store)

* **KPI**:
  + Store’s Total Sales
  + Store’s Total Units Sold
  + Store’s Total Margin
* **Sales Trend**: Line chart (`CAL\_DT` vs. `SALES\_AMT`)
* **Top Products Sold**: Bar chart (`PROD\_KEY` vs. `SALES\_AMT`)
* **Inventory Over Time**: Line chart (`CAL\_DT` vs. `INVENTORY\_ON\_HAND\_QTY`)
* **Out of Stock/Waste/PROMO**: Stacked bar (`OUT\_OF\_STOCK\_FLG`, `WASTE\_QTY`, `PROMOTION\_FLG`)
* **Store Info**: Card (`STORE\_DESC`, `STORE\_TYPE\_CD`, `STORE\_KEY`)
* **Slicers**: Year