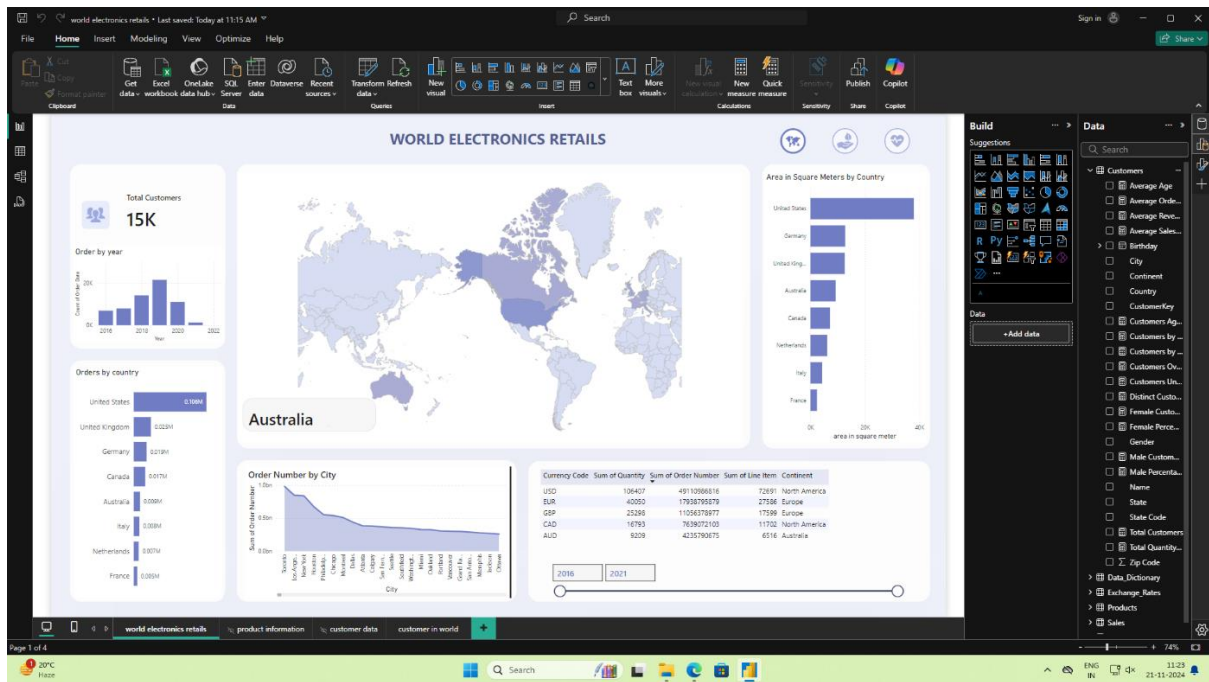


## Data Visualization Tools and Software

# WORLD ELECTRONICS RETAILS

Dashboard:

Front page:



### Key Sections in the Dashboard

#### 1. Top Section (Title & Filters):

- The title, **World Electronics Retails**, represents the overall theme of the dashboard.
- There are filter buttons/icons at the top-right (likely for specific actions like filtering by region, product category, etc.).

#### 2. Left Panel:

- **Total Customers (15K):** Displays a key metric representing the total number of customers.
- **Orders by Year (Bar Chart):**
  - Shows the count of orders placed each year, from 2016 to 2022.
  - A clear upward trend is visible from 2016 to 2020, indicating growth in orders over time.
- **Orders by Country:**
  - A ranked list of countries by the number of orders.
  - The **United States** leads with the highest number of orders (0.106M), followed by the United Kingdom and Germany.

#### 3. Center Section (Map):

- A **world map visualization** highlighting countries with varying shades to represent data such as sales, customers, or order density.
  - Australia is specifically highlighted, indicating a filter applied or a selected data point.
4. **Right Panel:**
- **Area in Square Meters by Country (Bar Chart):**
    - Compares the total area of sales locations or warehouses by country.
    - The United States has the largest area, followed by Germany and the United Kingdom.
5. **Bottom Section:**
- **Order Number by City (Line Chart):**
    - A declining trend is shown across cities, likely sorted by the total number of orders.
  - **Data Table:**
    - Shows summarized data for various currencies, quantities, order numbers, and continents.
    - Provides granular details for specific metrics across regions and currencies.
  - **Time Filter (2016 to 2021):**
    - A time slider filter allows users to focus on data within a selected time frame.

### 5. Bottom Section:

- A declining trend is shown across cities, likely sorted by the total number of orders.
- **Data Table:**
  - Shows summarized data for various currencies, quantities, order numbers, and continents.
  - Provides granular details for specific metrics across regions and currencies.
- **Time Filter (2016 to 2021):**
  - A time slider filter allows users to focus on data within a selected time frame.

## Insights from the Dashboard

**Second page:**

## Key Sections in the Dashboard

### 1. Left Panel:

- **Market Overview:**
  - Displays a brief description of the market, stating the **Consumer Electronics Retailers Market size** as USD 1.27 trillion in 2024, with a projected growth to 1.59 trillion by 2029 at a CAGR of 4.56%.
- **Product List:**
  - A vertical bar chart categorizing products by their sales or quantities:
    - **Home Appliances** have the highest value.
    - Other categories include Computers, Cameras, Cell Phones, etc.
    - "Music, Movies, and Audio Books" appears to have the least sales.

### 2. Center Panel (Map):

- A **3D globe visualization** highlights countries or regions.
- Australia is emphasized, suggesting a filter is applied or a specific product/category is selected.

### 3. Right Panel:

- **Product Category by Country:**
  - A list of product categories filtered by country. For example:
    - In **Australia**, the listed categories include Audio, Cameras, Computers, and Home Appliances.
    - Other countries like Canada and France are also shown with respective product categories.

### 4. Bottom Section:

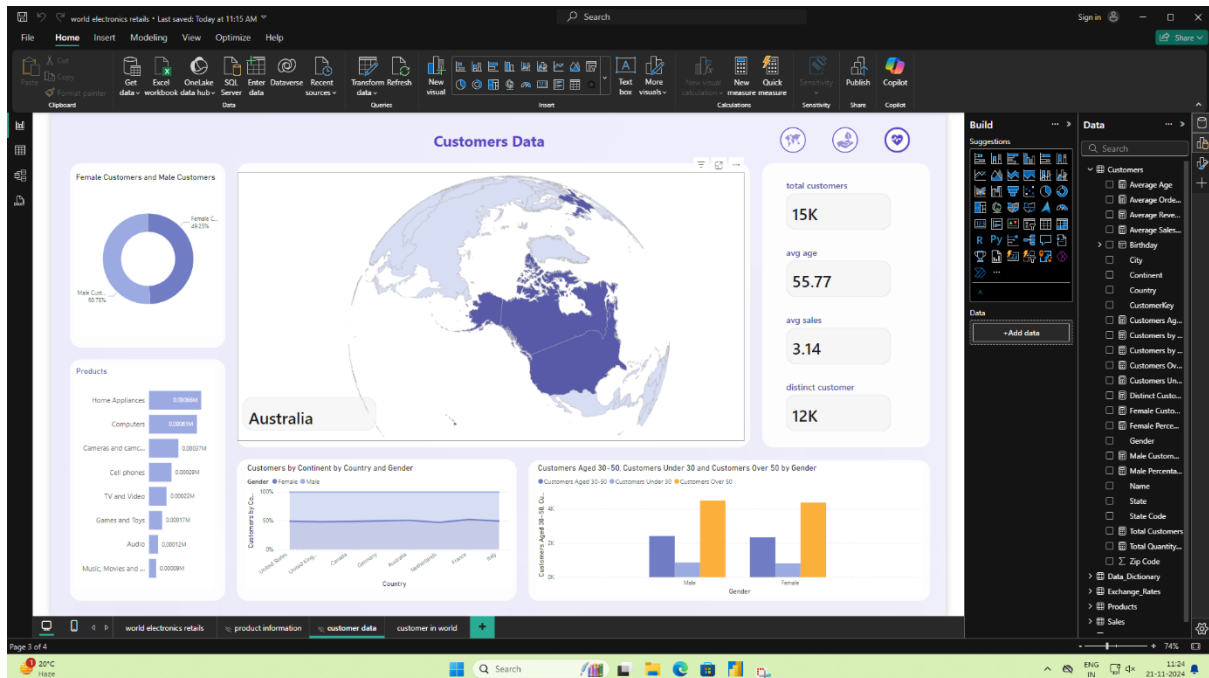
- **KPIs (Key Performance Indicators):**
  - **Unit Cost (USD):** Displays 2.517K for the selected product category.
  - **Category:** Indicates the product category is **Audio**.
  - **Total Sales:** Shows 198K in total sales.
  - **Average Order Quantity:** Lists the average order quantity as 3.14.
- **Products by Subcategory (Pie Chart):**
  - A pie chart breakdown of subcategories within products, including:
    - **Movie DVD** (largest share, 14.43%).
    - Other subcategories like Desktops, Bluetooth Headphones, and Games.

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## Insights from the Dashboard

- **Home Appliances** and **Computers** dominate the product list in terms of sales or quantity.
- The **Audio** category has a unit cost of 2.517K and accounts for 198K in sales with an average order quantity of 3.14.
- The **Movie DVD subcategory** leads in sales within products.

### Third page:



### Key Sections in the Dashboard

#### 1. Page Title: "Customers Data"

- Indicates the dashboard focuses on analyzing customer demographics and sales data.

#### 2. Key Metrics (Right Panel)

- Total Customers: 15K**  
Total number of customers in the dataset.
- Average Age: 55.77**  
The average age of customers.
- Average Sales: 3.14**  
Represents average sales per customer (likely in thousands or another unit).
- Distinct Customers: 12K**  
Shows the unique customers in the dataset.

#### 3. Map Visualization (Center)

- A globe view showing customers' distribution, currently highlighting **Australia**.
- Darker shading likely represents areas with higher customer concentration.

#### 4. Gender Distribution (Left Panel)

- A **donut chart** divides customers into:
  - Male: 50.75%**
  - Female: 49.25%**

## 5. Product Categories (Left Panel)

- A vertical bar chart lists product categories by quantity sold (or popularity):
  - Top products include **Home Appliances**, **Computers**, and **Cameras & Camcorders**.
  - Lower sales are visible for categories like **Audio** and **Music, Movies, and Media**.

## 6. Customer Demographics by Country (Bottom-Left Graph)

- A **line chart** comparing male and female customers across different countries (United States, Canada, Australia, etc.).

## 7. Age Group Analysis by Gender (Bottom-Right Graph)

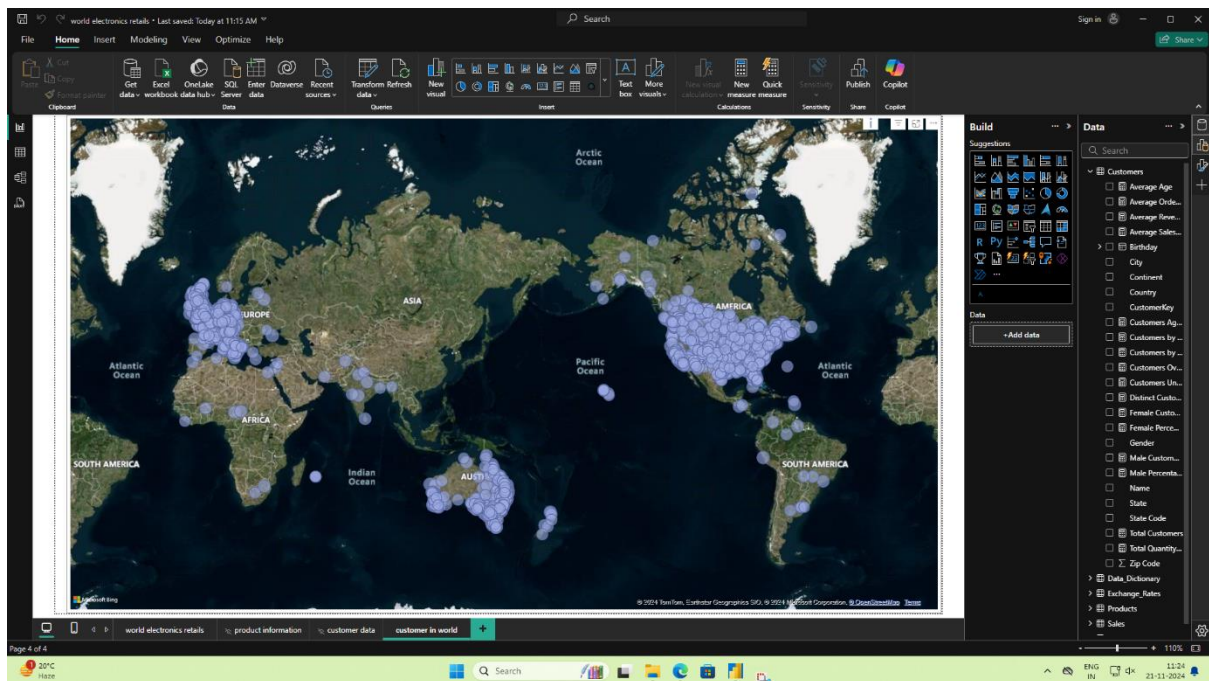
- A bar chart visualizes customer distribution across three age groups:
  - **Aged 30–50**
  - **Under 30**
  - **Over 50**
- Comparison is split by gender (male and female).

## 8. Interface Elements

- **Build Panel (Right):** Lists datasets (e.g., "Customers," "Products," etc.) and fields used for visualizations.
- **Navigation Tabs (Bottom):** Indicates this is **Page 3** of the report, with other pages (e.g., "product information," "customer data") available.

The dashboard effectively summarizes customer demographics, purchasing habits, and geographical distribution. It helps the business identify key trends in customer behavior and sales across regions and demographics.

**Last page:**



## Map Overview

### 1. Visualization Type:

- A **geographic map** using Bing Maps, displaying customer distribution across the globe. Each blue bubble represents customer density in a specific region or city.

## 2. Data Insights:

- The size of the bubbles reflects the **concentration of customers**.
- Regions with larger clusters of customers include:
  - **North America** (notably the United States and Canada).
  - **Europe**, with dense clusters across Western and Central Europe.
  - Moderate clusters in **South America, Africa, Asia, and Australia**.

### 3. Purpose:

- Highlights where customers are located geographically.
- Useful for identifying key markets and regions with significant customer bases.
- May guide regional marketing or sales strategies.

## Interface Elements

### 1. Tabs at the Bottom:

- Indicates this is **Page 4** of the report titled "Customer in World."
- Other tabs (e.g., "world electronics retails," "product information," etc.) likely offer additional insights.

## 2. Build Panel (Right):

- The same **dataset fields** are visible as in the earlier screenshot, allowing dynamic adjustments to the visualizations.

### 3. Map Controls:



- Standard interactive map features allow zooming and panning to explore specific regions in more detail.

## Potential Use Cases:

- **Market Analysis:** Understand where customers are concentrated.
- **Logistics Optimization:** Plan shipping or distribution centers based on customer locations.
- **Targeted Campaigns:** Tailor marketing efforts to regions with higher customer density.

This map gives a comprehensive visual representation of the global customer footprint for the business.

## Dataset:

CustomerKey	Gender	Name	City	State Code	State	Zip Code	Country	Continent	Birthday
900020	Male	John Ingram	DENNYLOANHEAD	Falkirk	Falkirk		United Kingdom	Europe	01 September 1960
900108	Male	Mas Farrel	NORTH COTES	North East Lincolnshire	North East Lincolnshire		United Kingdom	Europe	30 December 1963
900215	Male	Leon Cooper	Waterloo	Pembrokeshire	Pembrokeshire		United Kingdom	Europe	08 September 1974
900827	Male	Isaac Henderson	LITTLE STRETTON	Leicester	Leicester		United Kingdom	Europe	04 October 1983
901922	Male	Nicholas O'Neill	HENFIELD	Horsham	Horsham		United Kingdom	Europe	31 December 1976
902361	Male	Gabriel Gibbons	ROCKFIELD	Newport	Newport		United Kingdom	Europe	24 June 1979
902770	Male	Ellis Rice	POPE HILL	Pembrokeshire	Pembrokeshire		United Kingdom	Europe	10 January 1951
902978	Male	Mohammad Barrett	NORMANTON ON TRENT	Newark and Sherwood	Newark and Sherwood		United Kingdom	Europe	27 May 1980
902993	Male	Gabriel Mah	HIGH BALANTYRE	Argyllshire	Argyllshire		United Kingdom	Europe	05 January 1939
903847	Male	Luke Crawford	OAKENCLOUGH	Fylde	Fylde		United Kingdom	Europe	02 June 1979
903932	Male	Tom Morris	INVERCHAOLAIN	Argyllshire	Argyllshire		United Kingdom	Europe	27 April 1991
905099	Male	Adam Butler	ABERAMAN	Rhondda Cynon Taf	Rhondda Cynon Taf		United Kingdom	Europe	02 May 1944
905530	Male	Hayden Ahmed	WALDOGAN	Cornwall	Cornwall		United Kingdom	Europe	01 August 1953
905762	Male	Alex Stewart	DUNALASTAIR	Perth and Kinross	Perth and Kinross		United Kingdom	Europe	16 July 1965
905783	Male	Ethan Baldwin	BURSTOW	Crawley	Crawley		United Kingdom	Europe	02 January 1988
905941	Male	Connor Pickering	LOWER TEAN	Staffordshire	Staffordshire		United Kingdom	Europe	06 April 1953
906022	Male	Jack Coles	SOUTHWOOD	Mendip	Mendip		United Kingdom	Europe	06 May 1976
906443	Male	Alexander Doherty	TUDENHAM	Forest Heath	Forest Heath		United Kingdom	Europe	27 November 1979
906832	Male	Josh Mistry	LLANDANIEL RAB	Anglesey	Anglesey		United Kingdom	Europe	01 November 1978
906967	Male	Bradley Greenwood	CLUCKNEY	Bolsover	Bolsover		United Kingdom	Europe	30 March 1997
907108	Male	Ethan Owen	CREED	Cornwall	Cornwall		United Kingdom	Europe	07 November 1947
907250	Male	Toby Stewart	BILTING	Ashford	Ashford		United Kingdom	Europe	28 December 1985
907393	Male	Henry Gray	GIRSEY	Darlington	Darlington		United Kingdom	Europe	25 March 1969
908282	Male	Rhys Atkinson	NEWBURN	Gloucester	Gloucester		United Kingdom	Europe	22 January 1947
908329	Male	William Preston	BOOTH WOOD	Calderdale	Calderdale		United Kingdom	Europe	28 March 1949
908867	Male	Lucas Gibbons	STOKE ST GREGORY	Somerset	Somerset		United Kingdom	Europe	23 December 1974
909122	Male	Oscar Collier	PISTON	Bath and North East Somerset	Bath and North East Somerset		United Kingdom	Europe	21 June 1984
909253	Male	Oscar Watts	WOODBECK	Bassetlaw	Bassetlaw		United Kingdom	Europe	17 March 1976
909239	Male	Thomas Bartlett	BRANSGORE	Christchurch	Christchurch		United Kingdom	Europe	26 March 1980
909379	Male	Joel Sykes	THROTHAM	West Berkshire	West Berkshire		United Kingdom	Europe	14 July 1952
909330	Male	Jonathan Lamb	GRANDTULLY	Perth and Kinross	Perth and Kinross		United Kingdom	Europe	05 May 1938
909906	Male	Samuel Little	LLANDERHOLEN	Gwynedd	Gwynedd		United Kingdom	Europe	25 January 1959
910032	Male	Henry Shah	BREDON	TeWKesbury	TeWKesbury		United Kingdom	Europe	30 June 1963
910064	Male	Kieran Holmes	GREENLOANING	Falkirk	Falkirk		United Kingdom	Europe	28 September 1960
910717	Male	Evan Lane	TALGORTH	Llandrindod Wells	Llandrindod Wells		United Kingdom	Europe	23 August 1974
911045	Male	Leon Bishop	MORESTEAD	Winchester	Winchester		United Kingdom	Europe	30 April 1947
911088	Male	Josh Manning	KINNETTLES	Angus	Angus		United Kingdom	Europe	02 July 1984

## 1. Dataset Overview

- The table contains detailed information about customers, including:
  - **CustomerKey:** A unique identifier for each customer.
  - **Gender:** Indicates the customer's gender (e.g., Male).
  - **City:** Specifies the customer's city of residence.
  - **State/State Code:** Provides the state and its corresponding code.
  - **Zip Code:** Displays the postal code of the customer's location.
  - **Country:** Indicates the customer's country.
  - **Continent:** Shows the continent of residence.
  - **Birthday:** Records the customer's date of birth.

## 2. Key Observations

- The data seems to focus on customers from the **United Kingdom** (under the "Country" column) and the continent **Europe**.
- The **Birthday** column suggests that this dataset could also be used to analyze age demographics.
- There are **15,266 rows** in this table, as seen at the bottom-left corner, representing the total number of customers.

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## 3. Interface Components

- **Table Tools (Top Menu):**
  - Options to mark this table as a date table, manage relationships, or create new calculated measures and tables.
- **Fields (Right Panel):**
  - The dataset is part of the "Customers" table, with other tables like "Data\_Dictionary," "Exchange\_Rates," "Products," "Sales," and "Stores" also present in the model.

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## Use Cases for the Data

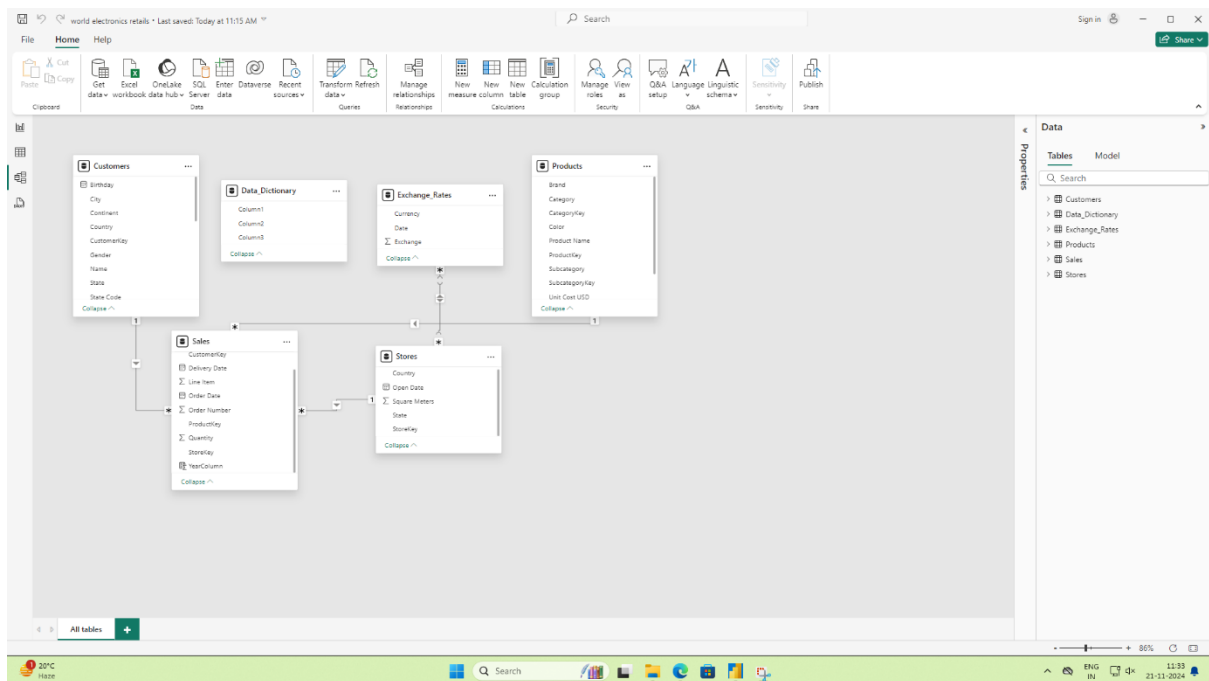
1. **Customer Demographics Analysis:**
  - Filter or group customers by location, gender, or age for targeted marketing.
2. **Geographical Insights:**
  - Analyze customer distribution by city, state, or continent.
3. **Age-Based Segmentation:**
  - Calculate age groups from the "Birthday" column for better demographic understanding.
4. **Mapping and Visualizations:**
  - Use the geographic data to create visualizations (e.g., maps, region-based heatmaps).

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This data is foundational for the visual dashboards previously discussed, offering granular insights into customer characteristics and locations.



## Model view:



## Tables and Their Relationships

### 1. Customers

- Contains customer-specific data such as:
  - Birthday, City, Continent, Country, Gender, Name, State, State Code.**
  - CustomerKey** serves as the primary key for uniquely identifying customers and is used to link with other tables (e.g., the **Sales** table).

### 2. Sales

- Represents sales transactions with fields such as:
  - Delivery Date, Line Item, Order Date, Order Number, ProductKey, Quantity, StoreKey.**
  - CustomerKey** links sales data to customers.
  - StoreKey** connects to the **Stores** table for store-specific details.
  - ProductKey** links to the **Products** table.

### 3. Products

- Contains details about products being sold:
  - Brand, Category, Product Name, Subcategory, Unit Cost USD, etc.**
  - ProductKey** is the unique identifier, linking this table to **Sales**.

### 4. Stores

- Includes data about store locations, with fields such as:
  - Country, Open Date, Square Meters, State.**
  - StoreKey** is used to connect sales data to the respective store.

### 5. Exchange\_Rates

- Tracks currency exchange rates:
  - Currency, Date, Exchange.**
  - Potentially used for converting sales or costs into a common currency.

## 6. Data\_Dictionary

- Likely a reference table with general descriptions or metadata for understanding the data schema:
  - Includes columns like **Column1**, **Column2**, **Column3**.

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### Model Details

#### • Relationships:

- The relationships between the tables are defined by lines with symbols:
  - The *1-to- relationships\** (e.g., between **Customers** and **Sales**) indicate that a single record in one table (e.g., a customer) can relate to multiple records in another table (e.g., sales).
  - These relationships ensure data consistency and enable queries across multiple tables.

#### • Fields:

- Each table lists its key fields, and some fields have aggregate or computed icons, indicating measures or calculations.

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### Power BI Features Used

#### • Data Tab on the Right:

- Provides access to the table data for exploration.

#### • Toolbar Options:

- Includes features like:
  - **Transform Data:** For cleaning and transforming data in Power Query.
  - **Manage Relationships:** For adjusting the table relationships.
  - **New Measure:** To create DAX measures for calculations.
  - **Publish:** To upload this report to Power BI Service for sharing.

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### Purpose

The data model is designed for analyzing sales and customer behaviors for a retail company. Potential insights could include:

- Sales performance by product, store, or customer demographics.
- Currency conversions using exchange rates.
- Store-specific analysis (e.g., impact of store size or location on sales).

