MINI PROJECT

Retail Sales Performance Analysis using Excel & Power BI

Data Analytics- Entri Elevate Coding (October 2025)

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Dataset source from Kaggle

https://www.kaggle.com/datasets/mohammadtalib786/retail-sales-dataset

Mini Project Link

https://drive.google.com/drive/folders/1pPCeJQluvyzJ9-5lYblGtxqKBt4v1uhP?usp=drive_link

Problem statement:

To analyze retail sales data using Excel and Power BI to identify sales trends, top-performing products, and customer behavior.

Tools Used:

- Microsoft Excel: Data Cleaning, Transformation, and Validation
- Power BI: Data Modeling, DAX Calculations, and Dashboard Creation

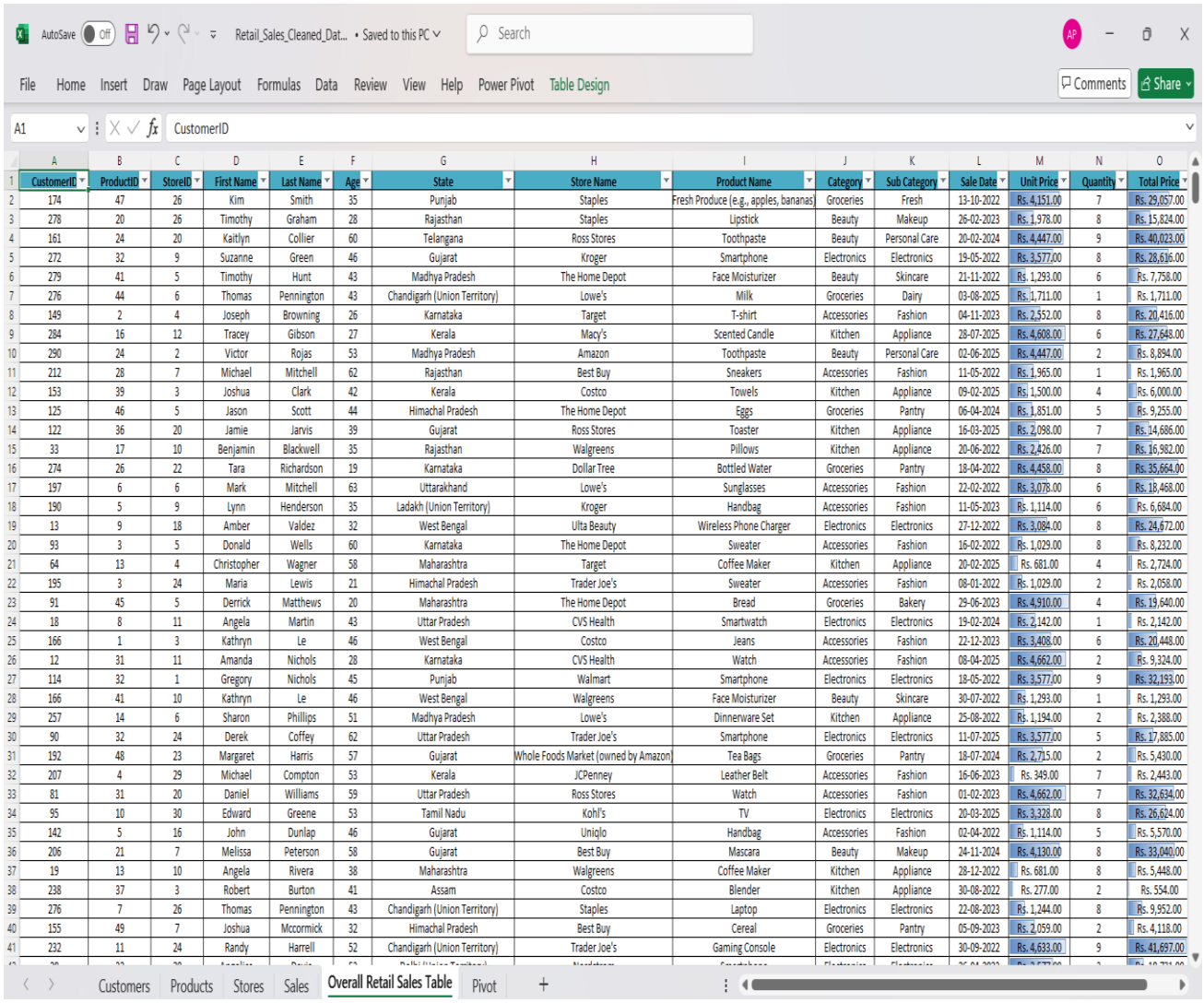
Dataset Description

Sheets Used:

- Customers
- Products
- Stores
- Sales
- Key Columns:
- CustomerID, ProductID, StoreID, Quantity, SaleDate, TotalAmount, Category, State

Data Cleaning & Transformation (Excel)

- Performed data preparation and cleaning using Excel before importing into Power BI:
- Removed missing, duplicate, and inconsistent entries
- standardized date and numeric formats (e.g., SaleDate, Quantity)
- Used Excel formulas like TRIM, IFERROR, and VLOOKUP for corrections
- Merged multiple sheets (Customers, Products, Stores, Sales) for integration
- Ensured consistency between CustomerID, ProductID, and StoreID
- Added calculated columns (Total Amount = Quantity × Unit Price)
- Result: A clean and transformed dataset ready for Power BI modeling.



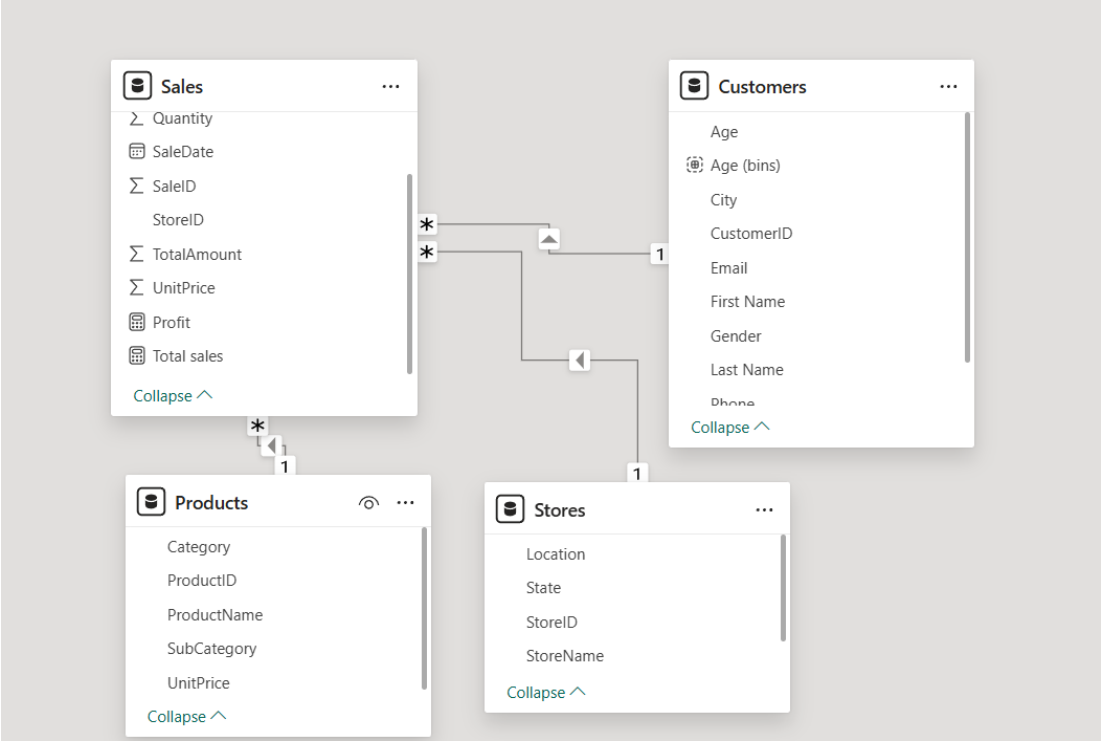
CustomerID	ProductID	StoreID	First Name	Last Name	Age	State	Store Name	Product Name	Category	Sub Category	Sale Date	Unit Price	Quantity	Total Price
174	47	26	Kim	Smith	35	Punjab	Staples	Fresh Produce (e.g., apples, bananas)	Groceries	Fresh	13-10-2022	Rs. 4,151.00	7	Rs. 29,057.00
278	20	26	Timothy	Graham	28	Rajasthan	Staples	Lipstick	Beauty	Makeup	26-02-2023	Rs. 1,978.00	8	Rs. 15,824.00
161	24	20	Kaitlyn	Collier	60	Telangana	Ross Stores	Toothpaste	Beauty	Personal Care	20-02-2024	Rs. 4,447.00	9	Rs. 40,023.00
272	32	9	Suzanne	Green	46	Gujarat	Kroger	Smartphone	Electronics	Electronics	19-05-2022	Rs. 3,577.00	8	Rs. 28,616.00
279	41	5	Timothy	Hunt	43	Madhya Pradesh	The Home Depot	Face Moisturizer	Beauty	Skincare	21-11-2022	Rs. 1,293.00	6	Rs. 7,758.00
276	44	6	Thomas	Pennington	43	Chandigarh (Union Territory)	Lowe's	Milk	Groceries	Dairy	03-08-2025	Rs. 1,711.00	1	Rs. 1,711.00
149	2	4	Joseph	Browning	26	Karnataka	Target	T-shirt	Accessories	Fashion	04-11-2023	Rs. 2,552.00	8	Rs. 20,416.00
284	16	12	Tracey	Gibson	27	Kerala	Macy's	Scented Candle	Kitchen	Appliance	28-07-2025	Rs. 4,608.00	6	Rs. 27,648.00
290	24	2	Victor	Rojas	53	Madhya Pradesh	Amazon	Toothpaste	Beauty	Personal Care	02-06-2025	Rs. 4,447.00	2	Rs. 8,894.00
212	28	7	Michael	Mitchell	62	Rajasthan	Best Buy	Sneakers	Accessories	Fashion	11-05-2022	Rs. 1,965.00	1	Rs. 1,965.00
153	39	3	Joshua	Clark	42	Kerala	Costco	Towels	Kitchen	Appliance	09-02-2025	Rs. 1,500.00	4	Rs. 6,000.00
125	46	5	Jason	Scott	44	Himachal Pradesh	The Home Depot	Eggs	Groceries	Pantry	06-04-2024	Rs. 1,851.00	5	Rs. 9,255.00
122	36	20	Jamie	Jarvis	39	Gujarat	Ross Stores	Toaster	Kitchen	Appliance	16-03-2025	Rs. 2,098.00	7	Rs. 14,686.00
33	17	10	Benjamin	Blackwell	35	Rajasthan	Walgreens	Pillows	Kitchen	Appliance	20-06-2022	Rs. 2,426.00	7	Rs. 16,982.00
274	26	22	Tara	Richardson	19	Karnataka	Dollar Tree	Bottled Water	Groceries	Pantry	18-04-2022	Rs. 4,458.00	8	Rs. 35,664.00
197	6	6	Mark	Mitchell	63	Uttarakhand	Lowe's	Sunglasses	Accessories	Fashion	22-02-2022	Rs. 3,078.00	6	Rs. 18,468.00
190	5	9	Lynn	Henderson	35	Ladakh (Union Territory)	Kroger	Handbag	Accessories	Fashion	11-05-2023	Rs. 1,114.00	6	Rs. 6,684.00
13	9	18	Amber	Valdez	32	West Bengal	Ulta Beauty	Wireless Phone Charger	Electronics	Electronics	27-12-2022	Rs. 3,084.00	8	Rs. 24,672.00
93	3	5	Donald	Wells	60	Karnataka	The Home Depot	Sweater	Accessories	Fashion	16-02-2022	Rs. 1,029.00	8	Rs. 8,232.00
64	13	4	Christopher	Wagner	58	Maharashtra	Target	Coffee Maker	Kitchen	Appliance	20-02-2025	Rs. 681.00	4	Rs. 2,724.00
195	3	24	Maria	Lewis	21	Himachal Pradesh	Trader Joe's	Sweater	Accessories	Fashion	08-01-2022	Rs. 1,029.00	2	Rs. 2,058.00
91	45	5	Derrick	Matthews	20	Maharashtra	The Home Depot	Bread	Groceries	Bakery	29-06-2023	Rs. 4,910.00	4	Rs. 19,640.00
18	8	11	Angela	Martin	43	Uttar Pradesh	CVS Health	Smartwatch	Electronics	Electronics	19-02-2024	Rs. 2,142.00	1	Rs. 2,142.00
166	1	3	Kathryn	Le	46	West Bengal	Costco	Jeans	Accessories	Fashion	22-12-2023	Rs. 3,408.00	6	Rs. 20,448.00
12	31	11	Amanda	Nichols	28	Karnataka	CVS Health	Watch	Accessories	Fashion	08-04-2025	Rs. 4,662.00	2	Rs. 9,324.00
114	32	1	Gregory	Nichols	45	Punjab	Walmart	Smartphone	Electronics	Electronics	18-05-2022	Rs. 3,577.00	9	Rs. 32,193.00
166	41	10	Kathryn	Le	46	West Bengal	Walgreens	Face Moisturizer	Beauty	Skincare	30-07-2022	Rs. 1,293.00	1	Rs. 1,293.00
257	14	6	Sharon	Phillips	51	Madhya Pradesh	Lowe's	Dinnerware Set	Kitchen	Appliance	25-08-2022	Rs. 1,194.00	2	Rs. 2,388.00
90	32	24	Derek	Coffey	62	Uttar Pradesh	Trader Joe's	Smartphone	Electronics	Electronics	11-07-2025	Rs. 3,577.00	5	Rs. 17,885.00
192	48	23	Margaret	Harris	57	Gujarat	Whole Foods Market (owned by Amazon)	Tea Bags	Groceries	Pantry	18-07-2024	Rs. 2,715.00	2	Rs. 5,430.00
207	4	29	Michael	Compton	53	Kerala	JCPenney	Leather Belt	Accessories	Fashion	16-06-2023	Rs. 349.00	7	Rs. 2,443.00
81	31	20	Daniel	Williams	59	Uttar Pradesh	Ross Stores	Watch	Accessories	Fashion	01-02-2023	Rs. 4,662.00	7	Rs. 32,634.00
95	10	30	Edward	Greene	53	Tamil Nadu	Kohl's	TV	Electronics	Electronics	20-03-2025	Rs. 3,328.00	8	Rs. 26,624.00
142	5	16	John	Dunlap	46	Gujarat	Uniqlo	Handbag	Accessories	Fashion	02-04-2022	Rs. 1,114.00	5	Rs. 5,570.00
206	21	7	Melissa	Peterson	58	Gujarat	Best Buy	Mascara	Beauty	Makeup	24-11-2024	Rs. 4,130.00	8	Rs. 33,040.00
19	13	10	Angela	Rivera	38	Maharashtra	Walgreens	Coffee Maker	Kitchen	Appliance	28-12-2022	Rs. 681.00	8	Rs. 5,448.00
238	37	3	Robert	Burton	41	Assam	Costco	Blender	Kitchen	Appliance	30-08-2022	Rs. 277.00	2	Rs. 554.00
276	7	26	Thomas	Pennington	43	Chandigarh (Union Territory)	Staples	Laptop	Electronics	Electronics	22-08-2023	Rs. 1,244.00	8	Rs. 9,952.00
155	49	7	Joshua	Mccormick	32	Himachal Pradesh	Best Buy	Cereal	Groceries	Pantry	05-09-2023	Rs. 2,059.00	2	Rs. 4,118.00
232	11	24	Randy	Harrell	52	Chandigarh (Union Territory)	Trader Joe's	Gaming Console	Electronics	Electronics	30-09-2022	Rs. 4,633.00	9	Rs. 41,697.00

Data Modeling (Power BI)

Schema Type: Star Schema

Relationships:

- Sales → Customers (CustomerID)
- Sales → Products (ProductID)
- Sales → Stores (StoreID)



Fact Table: Sales

- Dimension Tables: Customers, Products, Stores, Date
- Note: Cleaned Excel data was imported into Power BI for relational modeling.

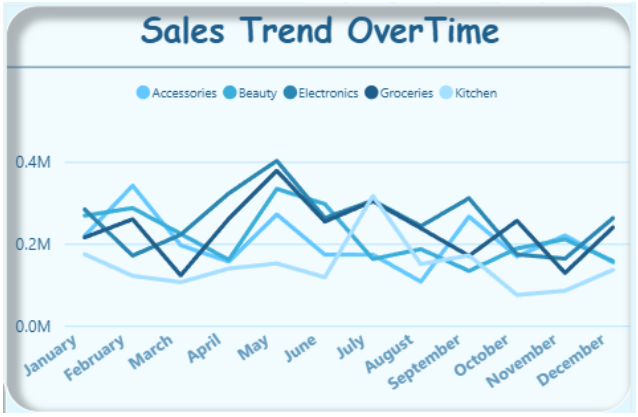
DAX Measures Created

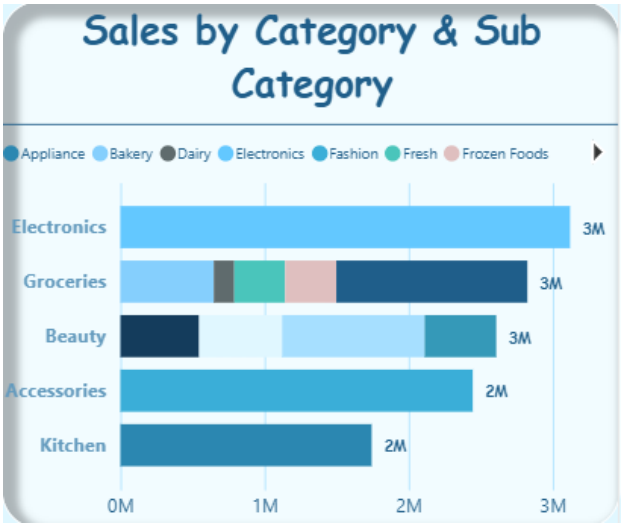
- Total Sales = SUM(Sales[TotalAmount])
- Total Quantity = SUM(Sales[Quantity])
- Profit = SUMX(Sales, Sales[TotalAmount] * 0.2)

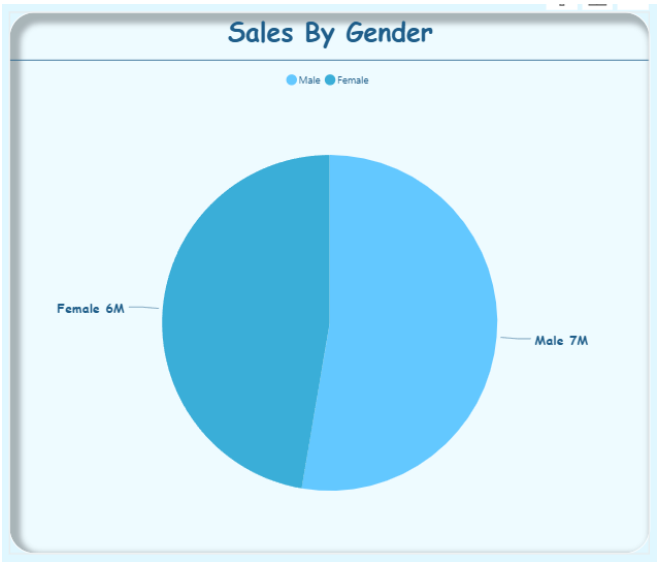
Dashboard Design

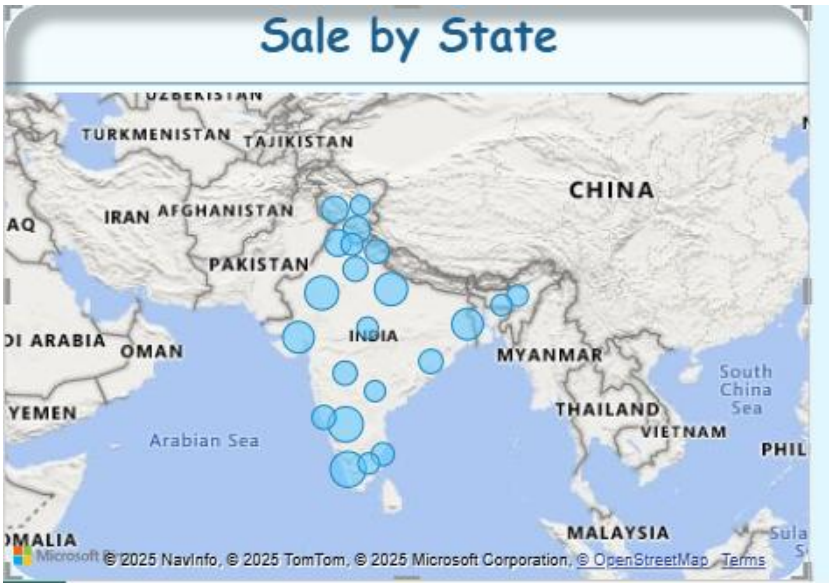
Visuals Used:

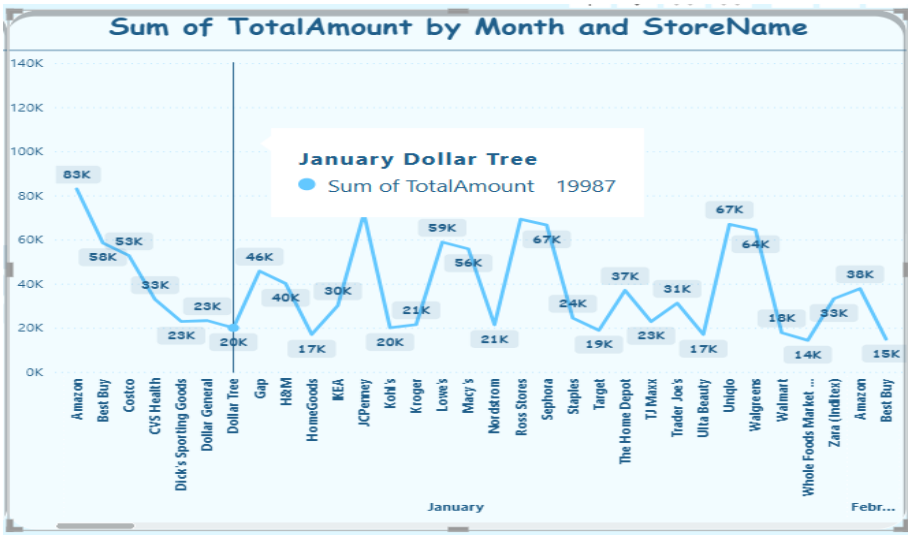
- KPI Cards: Total Sales, Quantity, Customers, stores, sales Profit
  -

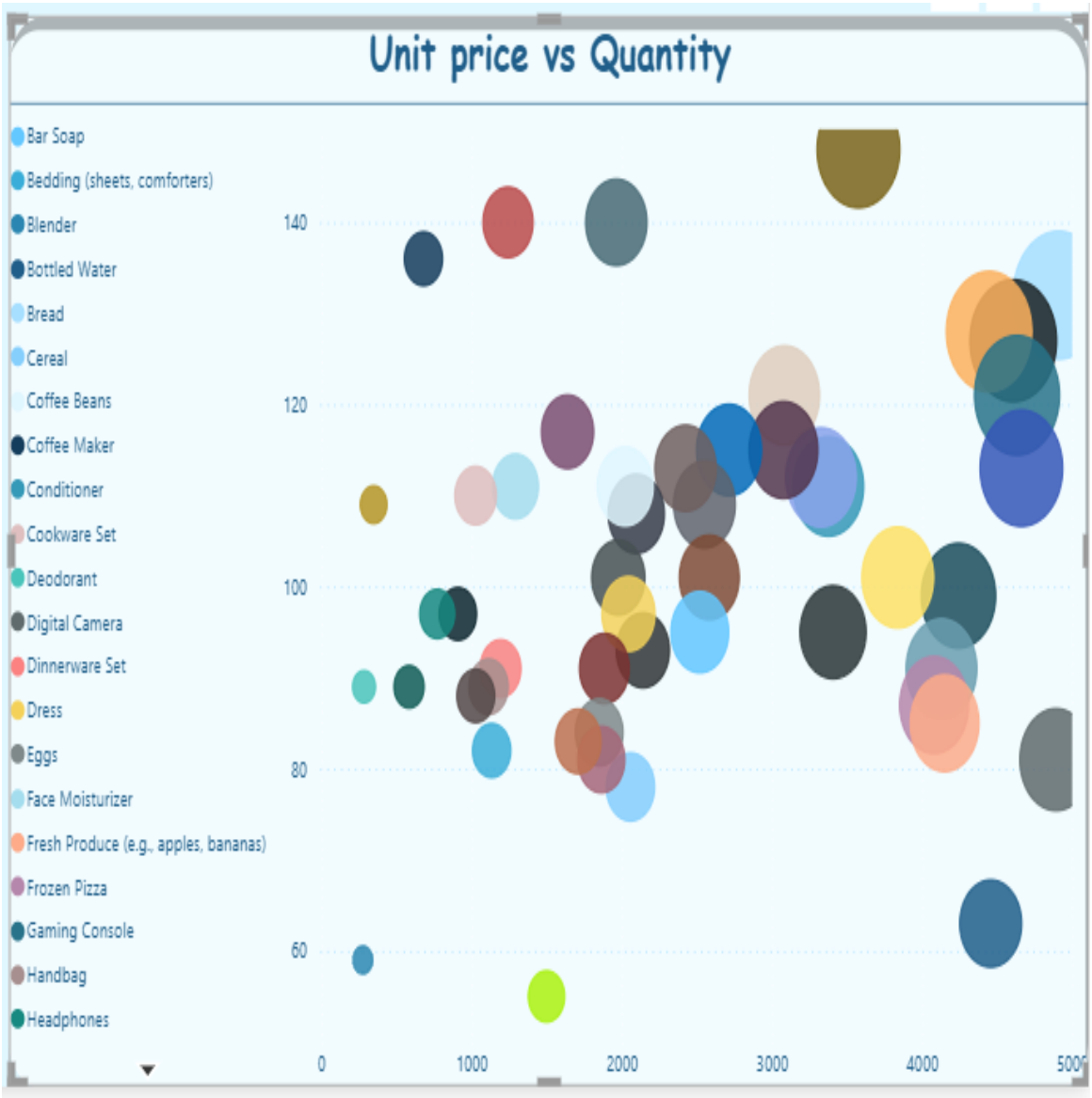
- Line Chart: Sales Trend over Time
  - 

- Bar Chart: Sales by Category & Sub Category
  - 

- Donut Chart: Sales by Gender
  - 

- Map: Sales by State
  - 

- Line Chart: Stores sale by Month
  - 

- Scatter Chart – Unit Price vs Quantity
  - 

Insights & Findings

- The Electronics category contributed the highest sales.
- Kerala and Karnataka had top-performing stores.
- Meghalaya and Himachal Pradesh had low Performance
- Male customers (Age 40–50) were the most active buyers.

Analytical Approach – Descriptive, Diagnostic, Predictive & Prescriptive

- **Descriptive Analysis:**
  The cleaned dataset revealed that overall sales performance has been declining gradually over time. Period-by-period comparisons show consistently low sales figures.
- **Diagnostic Analysis:**
  The analysis identified that only a few stores are performing well, while several others have low sales — indicating uneven performance across locations.
- **Predictive Analysis:**
  If this declining trend continues, the company is likely to face a reduction in overall revenue and potential financial losses in the future.
- **Prescriptive Analysis:**
  To overcome this issue, the company should activate underperforming stores by introducing offers and discounts, motivating sales employees through incentives, and increasing marketing efforts and advertisements to boost sales growth.

Conclusion:

- Excel was used effectively for initial data cleaning and transformation.
- Power BI visualized sales and customer patterns clearly.
- Identified profitable categories and top-performing stores.
- Insights can help optimize inventory and marketing decisions.