

## **Project Title:** Retail Revenue Leakage Analysis Dashboard

### Identifying & Solving Revenue Loss in the Retail Sector

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#### **Introduction:**

Revenue leakage in the retail industry leads to significant loss of profitability. Leakage occurs due to factors like excessive discounts, product refunds, or operational inefficiencies. This project focuses on building an interactive dashboard to identify, monitor, and reduce revenue leakage using real-world sales data.

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#### **Objective:**

To analyze retail sales data, track key metrics like discounts, refunds, and revenue leakage percentage, and provide actionable insights to minimize revenue loss.

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#### **Tools & Technologies Used:**

- Tableau Public: For interactive dashboard development
  - MS Excel: Initial data exploration & cleaning
  - Color Coding: Applied for better visualization and understanding
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#### **Dataset Description:**

- **Source:** Kaggle (Product Sales and Returns Dataset)
- **Current Columns:** Item Name, Category, Version, Item Code, Item ID, Buyer ID, Transaction ID, Date, Final Quantity, Total Revenue, Price Reductions, Refunds, Final Revenue, Sales Tax, Overall Revenue, Refunded Item Count, Purchased Item Count,
- **Suggested Columns:**
  - Item Details (Item Name, Category, Item ID)
  - Transaction Information (Transaction ID, Buyer ID, Date)
  - Revenue Metrics (Total Revenue, Discounts, Refunds, Net Revenue)
  - Quantity Metrics (Final Quantity, Refunded Item Count, Purchased Item Count)
  - Calculated Fields (Revenue Leakage %, Month-Year)

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## Data Cleaning & Preparation Steps:

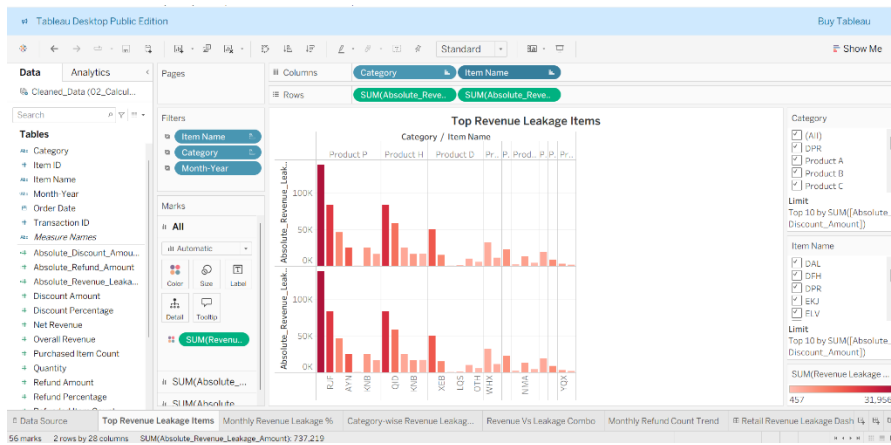
- Removed irrelevant columns such as Version and Item Code to declutter the dataset.
- Renamed columns for better understanding (e.g., Final Quantity to Quantity, Total Revenue to Total\_Revenue, etc.).
- Converted Order Date to a consistent date format (DD/MM/YYYY).
- Ensured numerical columns (Total Revenue, Refund Amount, Net Revenue, Sales Tax, etc.) are properly formatted as numeric values.
- Removed any duplicate records to avoid inflated results.
- Standardized text fields like Item Name and Category to avoid case sensitivity and inconsistency.

### Calculated new fields like:

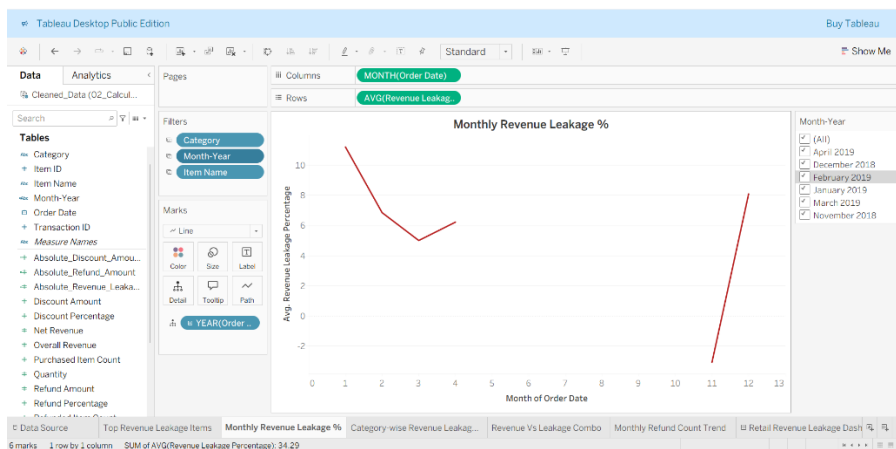
- Revenue Leakage Amount
- Revenue Leakage Percentage
- Created Month-Year derived field for time-based analysis.
- Verified data for null values and corrected or excluded as needed.

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
1	Item Name	Category	Item ID	Buyer ID	Transaction ID	Order Date	Quantity	Total_Revenue	Refund_A	Net_Revenue	Sales_Tax	Overall_Revenue	Refunded_Item_Count	Purchased_Item_Count		
2	QID	Product H	45527054	3301861	5.36E+13	14/04/2019	1	74.17	0	0.00	74.17	14.83	89.00	0	1	
3	OTH	Product P	16345004	1205940	4.76E+13	14/02/2019	-1	0.00	0	-79.17	-79.17	-15.83	-95.00	-1	0	
4	WHX	Product P	26246865	3342830	9.21E+13	28/11/2018	-1	0.00	0	-74.17	-74.17	-14.83	-89.00	-1	0	
5	RJF	Product P	42015157	7251983	5.99E+13	3/3/2019	1	79.17	0	0.00	79.17	15.83	95.00	0	1	
6	TSH	Product D	40522014	9940388	3.66E+13	26/11/2018	1	74.17	0	0.00	74.17	14.83	89.00	0	1	
7	BKT	Product Q	32047144	9139641	2.96E+13	2/1/2019	1	36.67	0	0.00	36.67	7.33	44.00	0	1	
8	TSH	Product P	40522014	3621461	1.19E+13	26/12/2018	1	55.00	0	0.00	55.00	11.00	66.00	0	1	
9	LQS	Product C	26922227	4238393	7.22E+13	14/12/2018	1	82.50	0	0.00	82.50	16.50	99.00	0	1	
10	WHX	Product A	70509397	5467593	6.64E+13	20/03/2019	-1	0.00	0	-107.50	-107.50	-21.50	-129.00	-1	0	
11	WHX	Product P	30466884	6927154	1.23E+13	15/02/2019	1	79.17	0	0.00	79.17	15.83	95.00	0	1	
12	LQS	Product B	24064862	3278460	4.00E+13	25/11/2018	1	82.50	-16.5	0.00	66.00	13.20	79.20	0	1	
13	KNB	Product P	82629421	9164098	3.48E+13	18/02/2019	1	79.18	-15.84	0.00	63.34	12.66	76.00	0	1	
14	WHX	Product P	10812154	7787287	7.65E+13	10/2/2019	1	79.17	0	0.00	79.17	15.83	95.00	0	1	
15	AYN	Product P	13282993	6386377	5.05E+13	2/1/2019	1	55.00	0	0.00	55.00	11.00	66.00	0	1	
16	QID	Product H	8.42E+13	5162704	5.06E+13	3/11/2018	0	74.17	0	-74.17	0.00	0.00	0.00	-1	1	
17	CRH	Product P	40213065	7030843	7.58E+13	4/4/2019	1	79.17	0	0.00	79.17	15.83	95.00	0	1	
18	LQS	Product B	24064862	9461313	6.72E+13	23/11/2018	1	82.50	-16.5	0.00	66.00	13.20	79.20	0	1	
19	RJF	Product P	88162726	5950642	1.34E+13	2/4/2019	-1	0.00	0	-79.16	-79.16	-15.84	-95.00	-1	0	
20	RJF	Product P	95083972	2328606	5.26E+13	25/02/2019	1	79.17	-20.84	0.00	58.33	11.67	70.00	0	1	
21	LQS	Product B	24064862	4982900	7.71E+13	9/1/2019	1	82.50	0	0.00	82.50	16.50	99.00	0	1	
22	YQX	Product M	92567842	9751428	8.87E+13	18/04/2019	1	82.50	0	0.00	82.50	16.50	99.00	0	1	
23	WHX	Product D	50418124	3583418	6.56E+13	28/03/2019	1	74.17	0	0.00	74.17	14.83	89.00	0	1	
24	WHX	Product D	29157946	4471680	4.73E+13	6/2/2019	-1	0.00	0	-74.17	-74.17	-14.83	-89.00	-1	0	
25	HZX	Product B	56806577	3595581	8.33E+13	4/12/2018	1	82.50	0	0.00	82.50	16.50	99.00	0	1	
Cleaned Data																

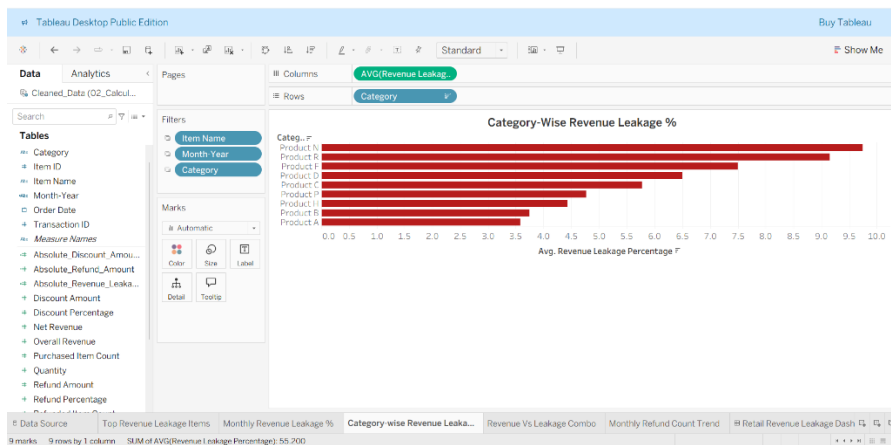
- Top Revenue Leakage Items



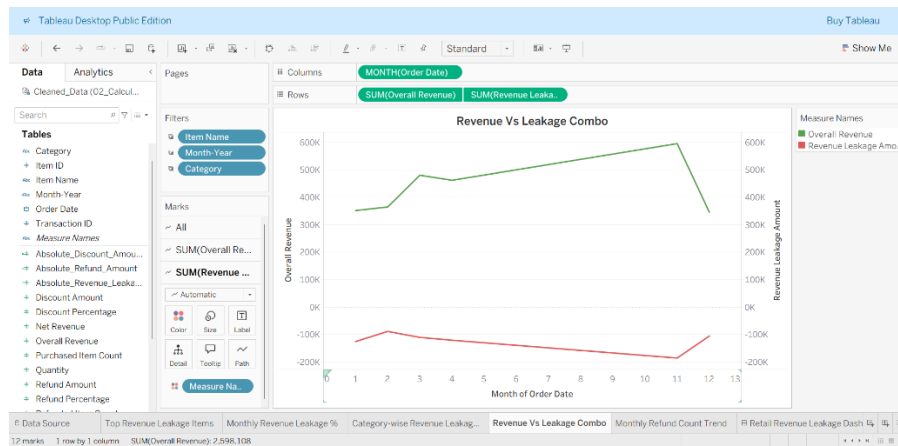
- Monthly Revenue Leakage %



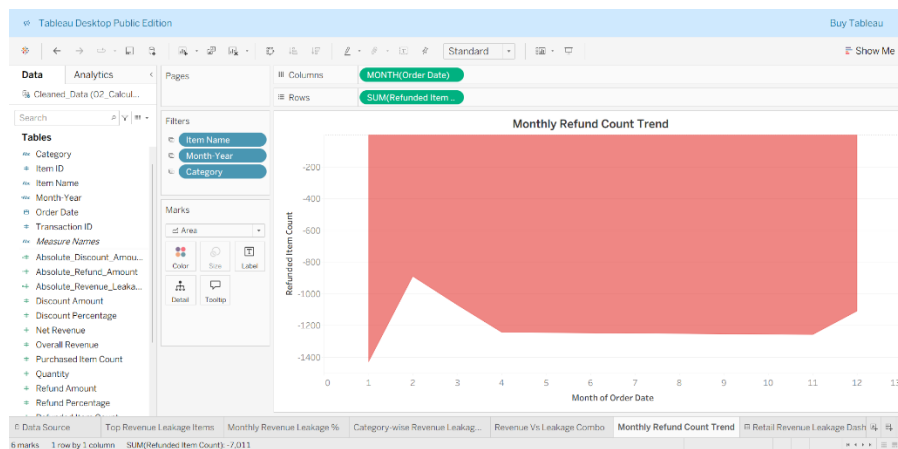
- Category-wise Revenue Leakage %



- Revenue vs Leakage Combo



- Monthly Refund Count Trend



## KPIs Monitored:

Metric	Description
Total Revenue (\$)	Total sales revenue generated
Total Discounts (\$)	Discounts given on products
Total Refunds (\$)	Amount refunded to customers
Leakage Amount (\$)	Absolute revenue leakage amount
Leakage %	Percentage of revenue leakage

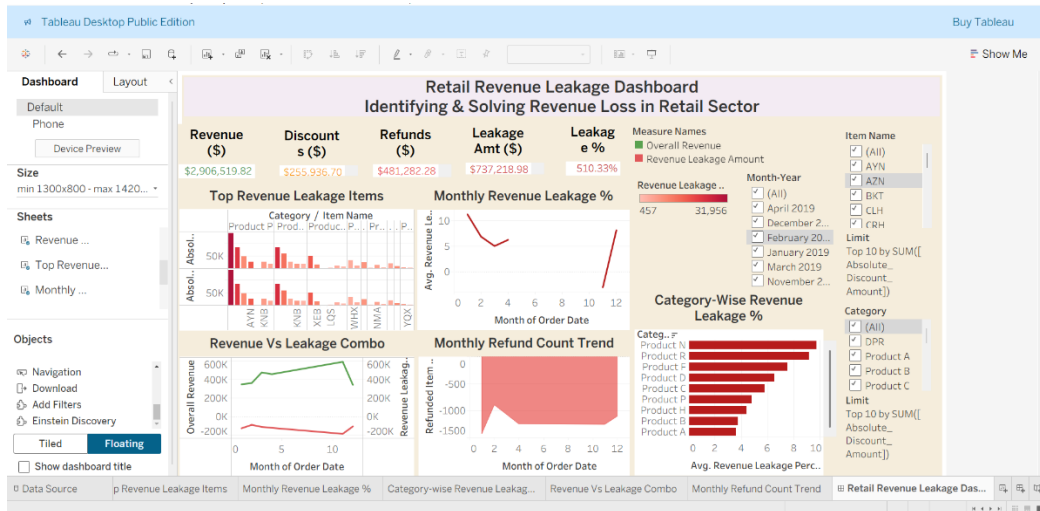
## Filters Applied on Dashboard:

Category Filter → Analyze by product categories

Item Name Filter → Focus on specific items causing loss

Month-Year Filter → Monthly trend and time-based filtering

## Final Dashboard:



## Analysis & Key Insights:

- The maximum revenue leakage is concentrated within Product P, specifically Item WHX and Item RJF, indicating the need for immediate product-level investigation.
- The highest leakage percentage was observed in January 2019 (11.20%), followed by February 2019 (6.85%), highlighting operational gaps during these months.
- During November 2018, the business recorded the highest overall revenue (₹595,171) along with the peak revenue leakage amount (₹185,758), suggesting that increased sales volumes coincide with higher leakage risk.
- Refund patterns align with leakage trends, implying product quality or service issues as major contributors to revenue loss.

## Conclusion:

This project successfully delivers an interactive dashboard to track and control revenue leakage. By focusing on high-loss products, refund patterns, and seasonal trends, the dashboard empowers decision-makers to take proactive steps in reducing revenue loss and improving business profitability.