

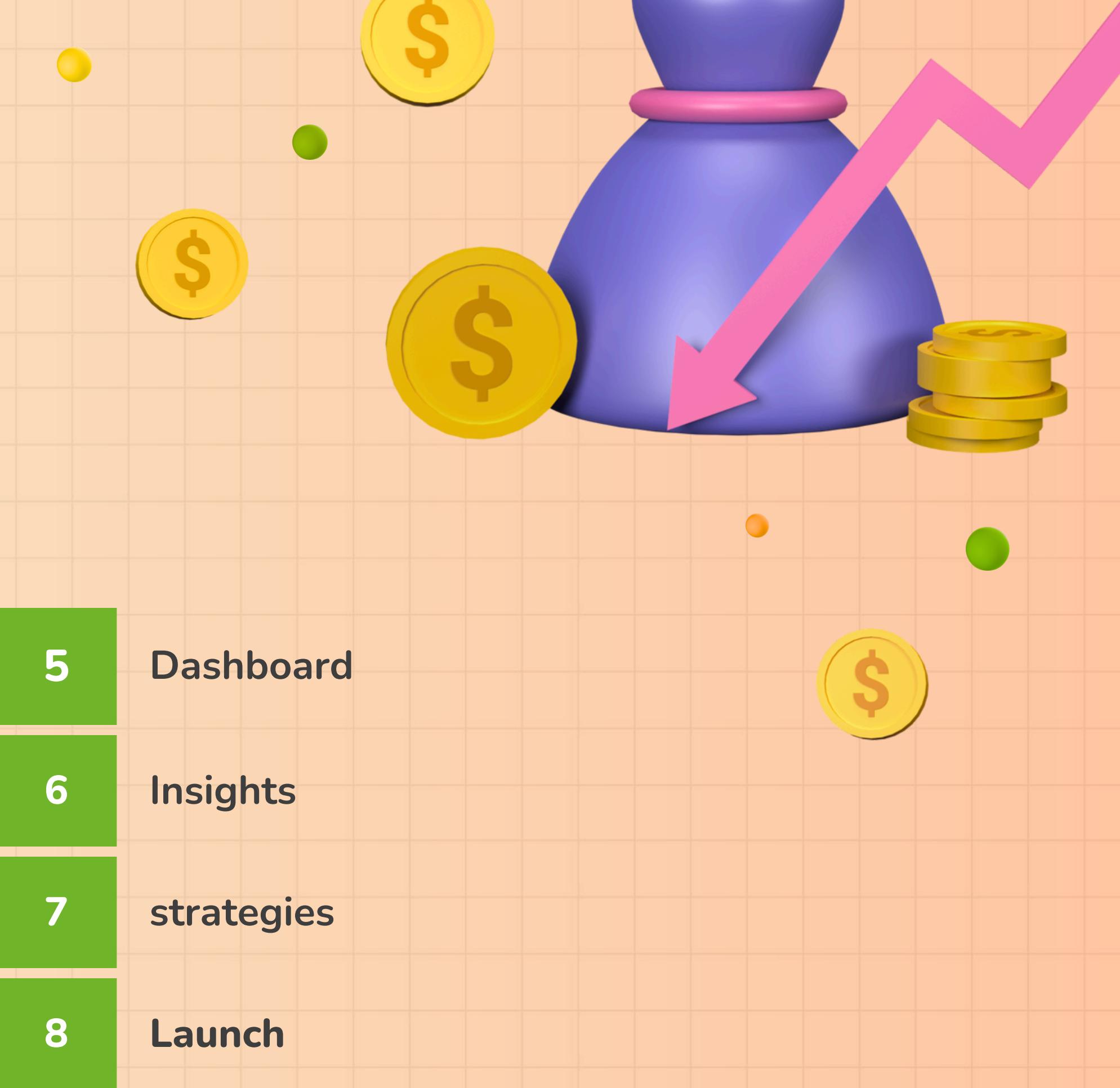
BIGMART SALES ANALYZING

By Mou Sarkar



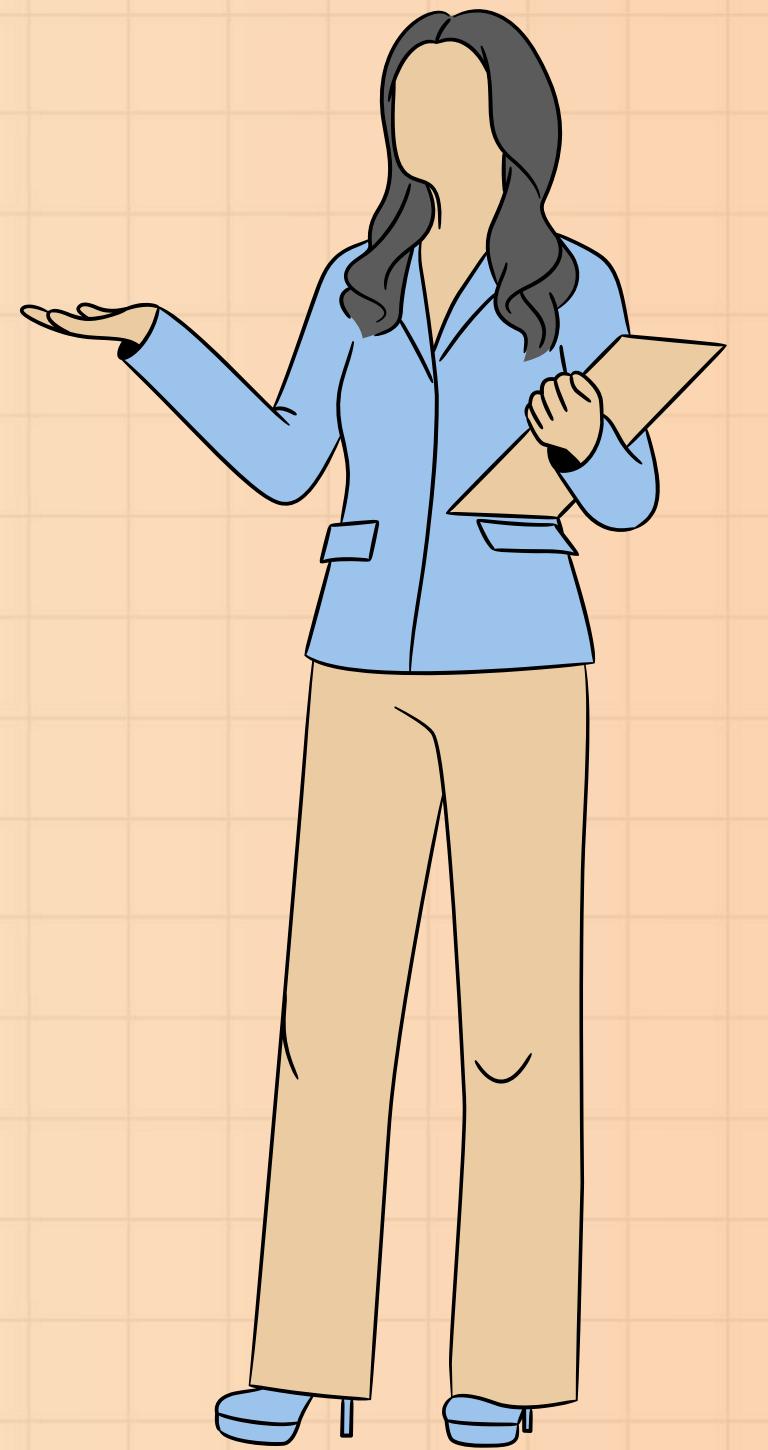
Agenda

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Introduction

BigMart Sales Data provides a detailed view of retail operations, including item specifics, outlet details, and sales labels. This dataset empowers businesses to strategically tailor product modifications and marketing efforts by understanding customer preferences and optimizing resources based on outlet types and sales trends.



Problem Statement

The objective of this project is to analyze the BigMart Sales dataset to understand how various factors like item type, outlet size, location, and establishment year influence sales. The goal is to uncover patterns that will help businesses optimize product offerings and marketing strategies to maximize retail performance.



Data Overview

Item_Id	Item_Weight	Item_Fat_Content	Item_Visibility	Item_Type	Item_MRP	Outlet_Identifier	Outlet_Established	Outlet_Size	Outlet_Location	Outlet_Type	Item_Outlet_Sales
FDA15	9.3	Low Fat	0.016047301	Dairy	249.8092	OUT049	1999	Medium	Tier 1	Supermarket	3735.138
DRC01	5.92	Regular	0.019278216	Soft Drinks	48.2692	OUT018	2009	Medium	Tier 3	Supermarket	443.4228
FDN15	17.5	Low Fat	0.016760075	Meat	141.618	OUT049	1999	Medium	Tier 1	Supermarket	2097.27
FDX07	19.2	Regular	0	Fruits and V	182.095	OUT010	1998	Small	Tier 3	Grocery Store	732.38
NCD19	8.93	Low Fat	0	Household	53.8614	OUT013	1987	High	Tier 3	Supermarket	994.7052
FDP36	10.395	Regular	0	Baking Goo	51.4008	OUT018	2009	Medium	Tier 3	Supermarket	556.6088
FDO10	13.65	Regular	0.012741089	Snack Food:	57.6588	OUT013	1987	High	Tier 3	Supermarket	343.5528
FDP10	null	Low Fat	0.127469857	Snack Food:	107.7622	OUT027	1985	Medium	Tier 3	Supermarket	4022.7636
FDH17	16.2	Regular	0.016687114	Frozen Food	96.9726	OUT045	2002	Small	Tier 2	Supermarket	1076.5986
FDU28	19.2	Regular	0.09444959	Frozen Food	187.8214	OUT017	2007	Small	Tier 2	Supermarket	4710.535
FDY07	11.8	Low Fat	0	Fruits and V	45.5402	OUT049	1999	Medium	Tier 1	Supermarket	1516.0266
FDA03	18.5	Regular	0.045463773	Dairy	144.1102	OUT046	1997	Small	Tier 1	Supermarket	2187.153
FDX32	15.1	Regular	0.1000135	Fruits and V	145.4786	OUT049	1999	Medium	Tier 1	Supermarket	1589.2646
FDS46	17.6	Regular	0.047257328	Snack Food:	119.6782	OUT046	1997	Small	Tier 1	Supermarket	2145.2076
FDF32	16.35	Low Fat	0.0680243	Fruits and V	196.4426	OUT013	1987	High	Tier 3	Supermarket	1977.426
FDP49	9	Regular	0.069088961	Breakfast	56.3614	OUT046	1997	Small	Tier 1	Supermarket	1547.3192
NCB42	11.8	Low Fat	0.008596051	Health and	115.3492	OUT018	2009	Medium	Tier 3	Supermarket	1621.8888
FDP49	9	Regular	0.069196376	Breakfast	54.3614	OUT049	1999	Medium	Tier 1	Supermarket	718.3982
DRI11	null	Low Fat	0.034237682	Hard Drinks	113.2834	OUT027	1985	Medium	Tier 3	Supermarket	2303.668
FDU02	13.35	Low Fat	0.10249212	Dairy	230.5352	OUT035	2004	Small	Tier 2	Supermarket	2748.4224
FDN22	18.85	Regular	0.138190277	Snack Food:	250.8724	OUT013	1987	High	Tier 3	Supermarket	3775.086

1) What are the total sales for each item type?

```
SELECT Item_Type, SUM(Item_Outlet_Sales) AS Total_Sales  
FROM BigMart_Sales  
GROUP BY Item_Type  
ORDER BY Total_Sales DESC;
```

Item_Type	Total_Sales
Fruits and Vegetables	2820059.8168000015
Snack Foods	2732786.087000002
Household	2055493.7131999983
Frozen Foods	1825734.7885999978
Dairy	1522594.0511999999
Canned	1444151.4925999993
Baking Goods	1265525.3422
Health and Hygiene	1045200.1378000001
Meat	917565.6119999996
Soft Drinks	892897.7219999991
Breads	553237.1887999995
Hard Drinks	457793.42719999974
Starchy Foods	351401.2504000002
Others	325517.6096
Breakfast	232298.95160000006
Seafood	148868.21940000003



2) How do sales vary across different outlet sizes?

```
SELECT Outlet_Size, SUM(Item_Outlet_Sales) AS Total_Sales  
FROM bigmart_sales  
GROUP BY Outlet_Size  
ORDER BY Total_Sales DESC;
```

	Outlet_Size	Total_Sales
	Small	8958743.140599992
	Medium	7489718.6916
	High	2142663.5781999985



3) Which locations have the highest and lowest sales?

```
SELECT Outlet_Location_Type, SUM(Item_Outlet_Sales) AS Total_Sales  
FROM bigmart_sales  
GROUP BY Outlet_Location_Type  
ORDER BY Total_Sales DESC;
```



Outlet_Location_Type	Total_Sales
Tier 3	7636752.631999983
Tier 2	6472313.706399999
Tier 1	4482059.072000001

4) calculate average Item_Outlet_Sales by Outlet_Establishment_Year.

```
select Outlet_Establishment_Year, avg(Item_Outlet_Sales) avg_sales  
from bigmart_sales  
group by Outlet_Establishment_Year  
order by avg_sales desc;
```



Outlet_Establishment_Year	avg_sales
1985	2483.6774743677356
2004	2438.8418660215075
1999	2348.354634623656
2007	2340.67526349892
1987	2298.9952555793975
1997	2277.8442668817192
2002	2192.3847976318607
2009	1995.4987392241392
1998	339.3516619819822

5)What are the average sales per item in different outlet types?

```
SELECT Outlet_Type, AVG(Item_Outlet_Sales) AS Avg_Sales  
FROM BigMart_Sales  
GROUP BY Outlet_Type  
ORDER BY Avg_Sales DESC;
```

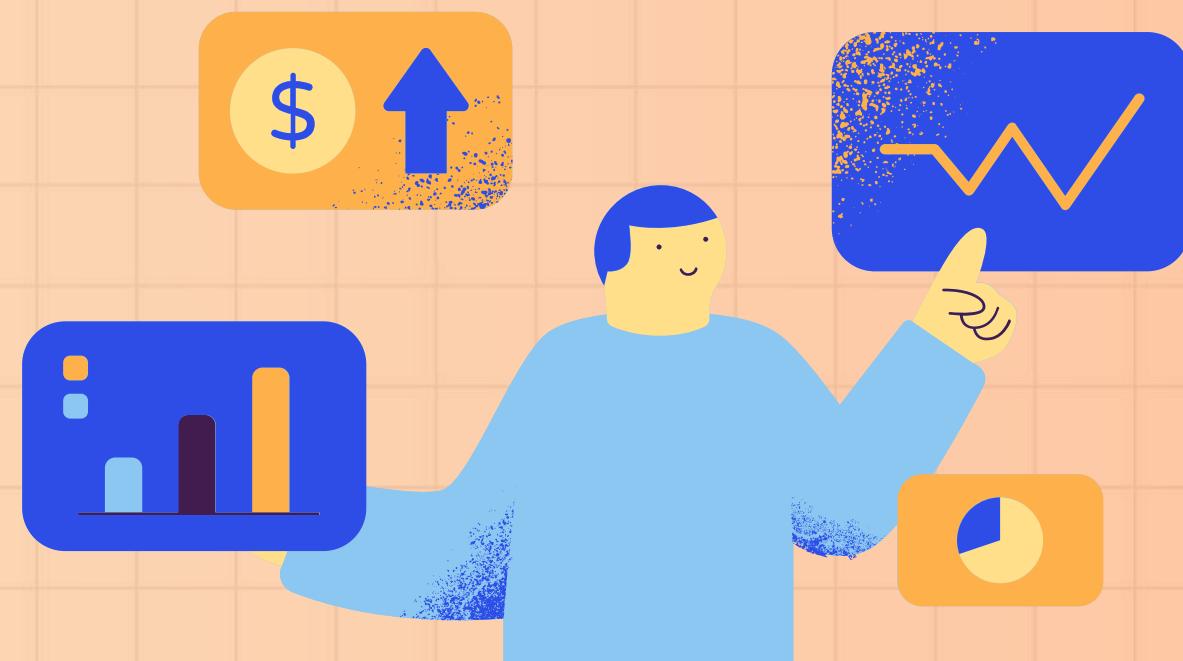


Outlet_Type	Avg_Sales
Supermarket Type3	3694.038557647059
Supermarket Type1	2316.1811481083005
Supermarket Type2	1995.4987392241392
Grocery Store	339.8285004616805

6) How do sales compare between different item visibility levels?

```
SELECT Item_Visibility, SUM(Item_Outlet_Sales) AS Total_Sales  
FROM BigMart_Sales  
GROUP BY Item_Visibility  
ORDER BY Total_Sales DESC;
```

Item_Visibility	Total_Sales
0	1169057.5802000002
0.01055095	13086.9648
0.014295564	12117.56
0.072317217	11738.054
0.059846975	11593.5754
0.073562475	11424.4622
0.144338493	11303.9524
0.088839949	10993.6896
0.030693309	10306.584
0.019495051	10256.649
0.034584356	10236.675
0.044444956	10072.8882



7) Which items have the highest sales in each outlet type?

```
WITH RankedItems AS (
    SELECT Outlet_Type, Item_Type, SUM(Item_Outlet_Sales) AS Total_Sales,
           ROW_NUMBER() OVER (PARTITION BY Outlet_Type ORDER BY SUM(Item_Outlet_Sales) DESC) AS SalesRank
    FROM BigMart_Sales
   GROUP BY Outlet_Type, Item_Type
)
SELECT Outlet_Type, Item_Type, Total_Sales
FROM RankedItems
WHERE SalesRank= 1;
```

Outlet_Type	Item_Type	Total_Sales
Grocery Store	Snack Foods	51596.171
Supermarket Type1	Fruits and Vegetables	1931957.8521999991
Supermarket Type2	Snack Foods	278714.53280000004
Supermarket Type3	Fruits and Vegetables	576028.1886000003



BIGMART SALES DASHBOARD

Total Sales

18.59M

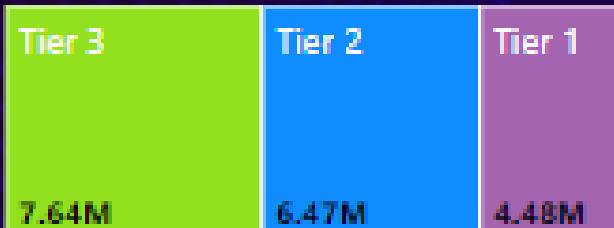
Average Sales

2.18K

Total Outlet Type

4

Sales by Outlet Location



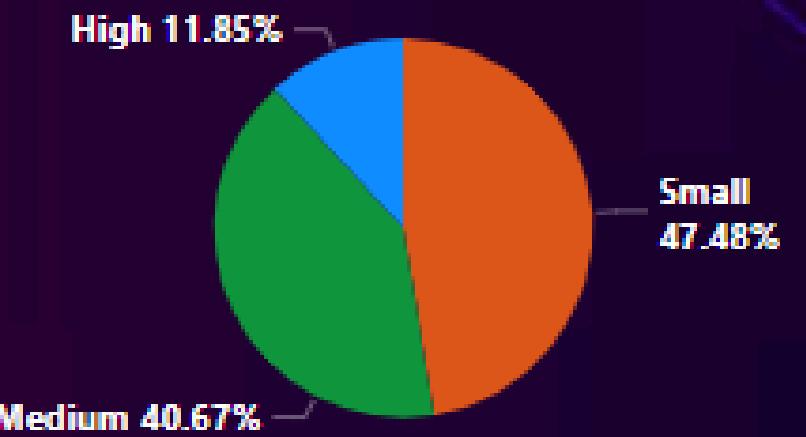
Item

- Select all
- Baking Goods
- ...

Average Sales by Year



Total Sales by Outlet Size



Top Selling Items in Each Outlet Type



Outlet_Establis...

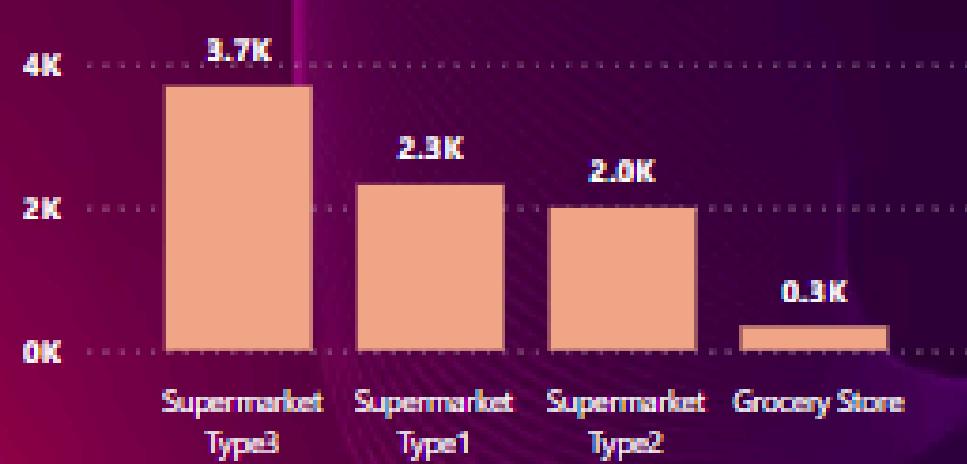
Supermarket Type1

- Select all
- 1985

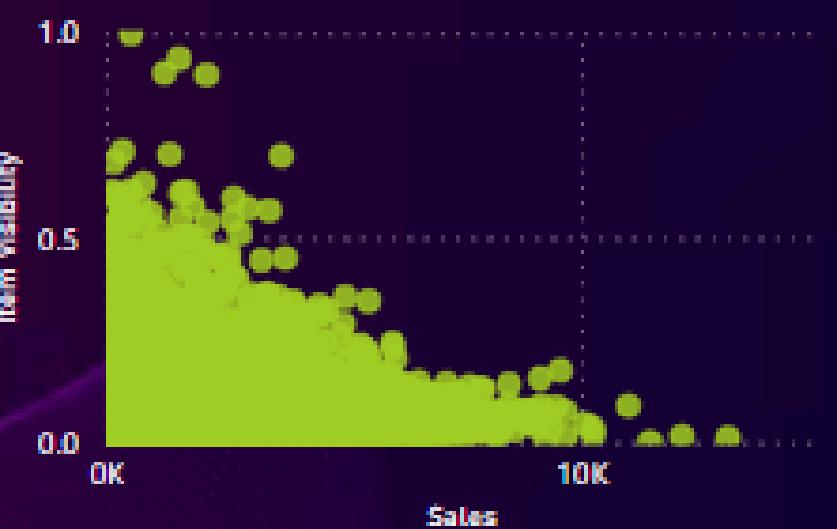
Outlet Type

- Select all
- Grocery Store
- Supermarket Type1
- Supermarket Type2

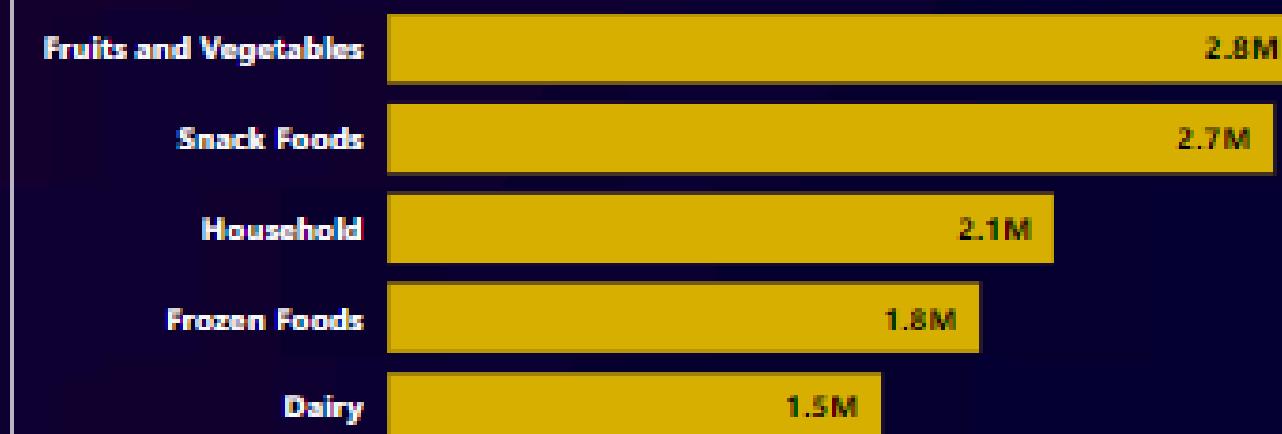
Average Sales per Item in Different Outlet Types



Total Sales vs Item Visibility



Total Sales by Item Type



Insights



- Fruits and Vegetables item has the highest total Sales(around 2.8M rupees)



- Small-sized outlets have 47.5% of sales, which is the highest. Medium-sized outlets have 40.7% of sales, and large-sized outlets have 11.9%, which is the lowest.



- 'Tier 3' outlet location has the highest Sales, while 'Tier 1' location has the lowest sales.



- There appears to be a negative correlation between item visibility and total sales. As visibility increases, sales decrease. This means that items with lower visibility may sell better, perhaps because of higher demand or advertised less.



- 'Supermarket Type 3' outlets have high average sales (around 4k), while 'Grocery Store' outlets have low average sales (below 0.5k).



- The average sales had a noticeable drop in 1998, indicating a sharp decline, probably for economic reasons. After 1998, sales slowly recovered, returning to more stable levels.



- "Supermarket Type 1" and "Supermarket Type 3" outlets' highest selling item type is "Fruits and Vegetables," while "Supermarket Type 2" and "Grocery Store" outlets' highest selling item type is "Snack Foods."

strategies to optimize sales

- Promote famous products like Fruits and Vegetables more.
- Put more effort into places where sales are highest, like Tier 3 locations
- Update what you offer in larger stores to attract more shoppers.
- Make strategies for each store types like supermarkets or grocery stores.
- Keep an eye on economic trends to adjust sales plans as needed.
- Teach staff how to sell more and give great service to boost sales.



Thank You

