

Pets Store Analysis

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I am a Computer Science graduate with a strong passion for data analysis and visualization.



I enjoy exploring information, observing patterns, learning trends, and presenting findings in an engaging and comprehensible format.



Skilled in Power BI, Excel, SQL, and Python, I focus on delivering clear, impactful dashboards and reports.



Volunteerism was where I attained communications, leadership, and collaboration skills. Having been a member of presentation team in Enactus where I honed my public speaking and data storytelling skills, as well as a member of HR in the Ministry of Youth and Sports where I applied the use of SWOT analysis and enhanced problem-solving and critical thinking skills, upgraded my data analysis strategy.



I am eager to apply my technical skills and analytical mindset to solve real-world challenges and contribute value through data-driven solutions.

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Project Overview :-

This project focuses on the analysis of sales transactions to determine how the store is performing in the long term. The dataset includes critical information such as transaction dates, invoice numbers, product categories, quantities sold, landed costs, shipping costs, and more.

The goal is to transform raw data into simple-to-grasp insights that can better support the business plan, identify high-performing areas, and make smarter decisions backed by data.



Analysis Steps :-



1. Understand The Data

- **Customer Table Overview**

Column Name	Description
Customer ID	A unique identifier for each customer.
Latitude	The geographic latitude of the customer's location.
Longitude	The geographic longitude of the customer's location.
Order City	The city where the customer placed their order.
Order State	The state where the customer placed their order.
Postal Code	The postal or ZIP code associated with the customer's address.

1. Understand The Data

- **Product Table Overview**

Column Name	Description
Category	Classification of the product based on type or use.
Description	Text description of the product.
Landed Cost	Total cost of the product including shipping and other expenses.
Shipping_Cost_1000_mile	Shipping cost per 1000 miles for the product.
Stock Code	Unique identifier for each product.
Weight	The weight of the product.

1. Understand The Data

- **Fact Sales Table Overview**

Column Name	Description
Customer ID	Identifier linking to the customer who made the purchase.
Description	Details or notes about the sale.
Invoice No	Unique number assigned to each invoice.
Quantity	Number of items sold in the transaction.
Sales	Total revenue generated from the sale.
Stock Code	Identifier linking to the sold product.

1. Understand The Data

- **State Region Mapping Table Overview**

Column Name	Description
Order State	State where the order was placed.
Region	Region associated with the order state.
State	Full name of the state.
State Abbreviations	Abbreviated code for the state.

2. Data Cleaning *Customer Table*

- **Missing Data Handling**

Checked for missing values in all columns.

Removed rows with missing values in Latitude and Longitude.

Tool Used:

1. *Python:* `data.isnull().sum(), data.dropna(subset=[...])`

2. *Excel:* *Filter* → *Blanks* → *Delete Rows*

- **Column Removal**

Removed unnecessary column: Order Postal to avoid redundancy.

Tool Used:

1. *Python:* `data.drop(['Order Postal'], axis=1)`

2. *Excel:* *Right-click column* → *Delete*

- **City Name Standardization**

Converted city names in Order City column to title case and removed spaces.

Tool Used:

1. *Python:* `str.title().str.strip()`

2. *Excel:* *PROPER()* function + *TRIM()*

- **State Name Standardization**

Converted state names in Order State to lowercase and removed spaces.

Tool Used:

1. *Python:* `str.lower().str.strip()`

2. *Excel:* *LOWER()* function + *TRIM()*

Before

A	B	C	D	E	F	G
Customer ID	Order City	Order Postal	Order State	Latitude	Longitude	
18287	Rock Springs	82901-7321	WY	41.5869	-109.2048	
18283	JACKSON	83001-9460	WY	43.48	-110.7618	
18282	Greybull	82426	WY	44.4892	-108.0562	
18281	EVANSTON	82930-4706	WY	41.268	-110.9633	
18280	CHEYENNE	82001-7901	WY	41.14	-104.8202	
18278	WHEELING	26003-6635	WV	40.064	-80.7209	
18277	SHEPHERDSTOWN	25443-4827	WV	39.4301	-77.8042	
18276	RIDGELEY	26753-7083	WV	39.6415	-78.7745	
18274	MOUNT HOPE	25880-1324	WV	37.8954	-81.1643	
18273	MOUNT CLARE	26408-6998	WV	39.19	-80.33	
18272	MOUNDSVILLE	26041-4037	WV	39.9204	-80.7431	
18270	MORGANTOWN	26508-8649	WV	39.6295	-79.9559	
18269	MORGANTOWN	26508-4276	WV	39.6295	-79.9559	
18268	Martinsburg	25404	WV	39.4561	-77.9638	
18265	Jumping Branch	25969	WV	37.6576	-80.9765	
18263	Fayetteville	25840	WV	38.0531	-81.104	
18262	FAIRMONT	26554-8240	WV	39.4851	-80.1426	
18261	COLLIERS	26035-1500	WV	40.367	-80.5412	
18260	COLLIERS	26035	WV	40.367	-80.5412	
18259	CHARLESTON	25387-1201	WV	38.3506	-81.6333	
18257	CHARLESTON	25304-1451	WV	38.3506	-81.6333	
18256	Chapmanville	25508	WV	37.9737	-82.0174	
18255	Sun Prairie	53590	Wisconsin	43.1835	-89.2134	
18252	rice lake	54868	Wisconsin	45.5028	-91.7332	

After

A	B	C	D	E
Customer ID	Order City	Order State	Latitude	Longitude
18287	Rock Springs	wy	41.5869	-109.2048
18283	Jackson	wy	43.48	-110.7618
18282	Greybull	wy	44.4892	-108.0562
18281	Evanston	wy	41.268	-110.9633
18280	Cheyenne	wy	41.14	-104.8202
18278	Wheeling	wv	40.064	-80.7209
18277	Shepherdstown	wv	39.4301	-77.8042
18276	Ridgeley	wv	39.6415	-78.7745
18274	Mount Hope	wv	37.8954	-81.1643
18273	Mount Clare	wv	39.19	-80.33
18272	Moundsville	wv	39.9204	-80.7431
18270	Morgantown	wv	39.6295	-79.9559
18269	Morgantown	wv	39.6295	-79.9559
18268	Martinsburg	wv	39.4561	-77.9638
18265	Jumping Branch	wv	37.6576	-80.9765
18263	Fayetteville	wv	38.0531	-81.104
18262	Fairmont	wv	39.4851	-80.1426
18261	Colliers	wv	40.367	-80.5412
18260	Colliers	wv	40.367	-80.5412
18259	Charleston	wv	38.3506	-81.6333
18257	Charleston	wv	38.3506	-81.6333
18256	Chapmanville	wv	37.9737	-82.0174
18255	Sun Prairie	wisconsin	43.1835	-89.2134
18252	Rice Lake	wisconsin	45.5028	-91.7332
18251	Kaukauna	wisconsin	44.278	-88.2721
18249	West Allis	wi	43.0167	-88.007

2. Data Cleaning *Products Table*

- Identify Outliers in Weight Column

Identify Outliers in Weight Column.

Used the Interquartile Range (IQR) method to detect values outside the acceptable range.

Tool Used: *Python & Excel*

Step	Formula
Q1 (25th percentile)	=QUARTILE.INC(range, 1) / data['Weight'].quantile(0.25)
Q3 (75th percentile)	=QUARTILE.INC(range, 3) / data['Weight'].quantile(0.75)
IQR	Q3 - Q1
Lower Bound	Q1 - (1.5 * IQR)
Upper Bound	Q3 + (1.5 * IQR)
Flag Outliers	=IF(AND(A2 >= LowerBound, A2 <= UpperBound), "Keep", "Outlier") data[(data['Weight'] < lower_bound) (data['Weight'] > upper_bound)]

After flagging the outliers, I filtered the data and removed any rows labeled as **Outlier** to keep only valid entries.

Before

A	B	C	D	E	F
Stock Code	Weight	Landed Cost	Shipping_Cost_1000_mile	Description	Category
22423	40	35	20	Taste of the Wild High Prairie Grain-Free Dry Dog Food 40lb	Food
85123A	2	6	5	Dog and Puppy Pads	Disposables
47566	6	18	12	Memory Foam Pet Beds for Small, Medium, and Large Dogs and Cats	Disposables
85099B	2	5	4	Earth Rated Dog Poop Bags	Disposables
23084	2	6	6	Templation Soft Cat Treats	Pet Food
22086	7	9	9	Litter Slide Multi-Cat Scented Clumping Clay Cat Litter	Disposables
84879	1	4	4	Pet Odor Eliminator	Cleanig Supplies
79321	1	22	7	ProBiotic Supplements for Dogs	Supplements
22502	1	36	7	Indoor Pet Camera	Electronics
22197	0.5	2.5	2.5	Sheba Perfect Portions Paté Wet Cat Food	Food
23298	10	18	10	Purina ONE SmartBlend Natural Adult Chicken 10lb	Food
22386	2	8	6	Milk-Bone MaroSnacks Dog Treats with Real Bone	Food
23203	1	6	5	Pet Hair Remover	Grooming
21137	5	12	9	Canned Cat Food	Food
22720	1	20	5	UltraSound Dog Barking Deterrent	Electronics
23284	15	23	10	Purina Pro Plan Adult Sensitive Skin	Supplements
22960	1	15	5	Rechargeable Pet Nail Grinder	Grooming
82484	2	30	7	NexGard Chew for Dogs	Food
20725	0.5	4	5	Pet Grooming Brush	Grooming
22114	0.5	8	5	ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	Grooming

After

A	B	C	D	E	F
Stock Code	Weight	Landed Cost	Shipping_Cost_1000_mile	Description	Category
85123A	2	6	5	Dog and Puppy Pads	Disposables
47566	6	18	12	Memory Foam Pet Beds for Small, Medium, and Large Dogs and Cats	Disposables
85099B	2	5	4	Earth Rated Dog Poop Bags	Disposables
23084	2	6	6	Templation Soft Cat Treats	Pet Food
22086	7	9	9	Litter Slide Multi-Cat Scented Clumping Clay Cat Litter	Disposables
84879	1	4	4	Pet Odor Eliminator	Cleanig Supplies
79321	1	22	7	ProBiotic Supplements for Dogs	Supplements
22502	1	36	7	Indoor Pet Camera	Electronics
22197	0.5	2.5	2.5	Sheba Perfect Portions Paté Wet Cat Food	Food
23298	10	18	10	Purina ONE SmartBlend Natural Adult Chicken 10lb	Food
22386	2	8	6	Milk-Bone MaroSnacks Dog Treats with Real Bone	Food
23203	1	6	5	Pet Hair Remover	Grooming
21137	5	12	9	Canned Cat Food	Food
22720	1	20	5	UltraSound Dog Barking Deterrent	Electronics
22960	1	15	5	Rechargeable Pet Nail Grinder	Grooming
82484	2	30	7	NexGard Chew for Dogs	Food
20725	0.5	4	5	Pet Grooming Brush	Grooming
22114	0.5	8	5	ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	Grooming

2. Data Cleaning *Fact Sales Table*

- **Invalid Data Detection**

Identified rows with invalid (≤ 0) values in Quantity, Unit Price, and Sales.

Tool Used:

1. *Python:* `df[(df['Quantity'] <= 0) | (df['Unit Price'] <= 0) | (df['Sales'] <= 0)]`

2. *Excel:* Filter \rightarrow Custom Filter (≤ 0) Rows

- **Fix Negative Values**

Converted all negative values to positive using absolute value.

Tool Used:

1. *Python:* `df[['Unit Price', 'Sales', 'Quantity']] = df[['Unit Price', 'Sales', 'Quantity']].abs()`

2. *Excel:* Replace Tool \rightarrow Find "-" \rightarrow

Replace with blank

- **Ensure Positive Values Only**

Kept only rows where Quantity, Sales, and Unit Price > 0 .

Tool Used:

1. *Python:* `df[(df['Quantity'] > 0) & (df['Sales'] > 0) & (df['Unit Price'] > 0)]`

2. *Excel:* Filter $> 0 \rightarrow$ Delete rows

- **Handle Missing Customer IDs**

Filled missing Customer ID values with "Unknown".

Tool Used:

1. *Python:* `df['Customer ID'].fillna('Unknown', inplace=True)`

2. *Excel:* Find blank & Replace with
Unknown

2. Data Cleaning *Fact Sales Table*

- **Detect Duplicated Rows**

Checked for duplicates based on Invoice No, Description, Quantity, Unit Price.

Tool Used:

1. *Python: df[df.duplicated(...)]*

2. *Excel: Conditional Formatting → Highlight Duplicates*

- **Remove Duplicates**

Deleted exact duplicates from the dataset.

Tool Used:

1. *Python: df.drop_duplicates(..., keep=False)*

2. *Excel: Remove Duplicates Tool*

- **Handle Missing Invoice Numbers**

Dropped rows with missing Invoice No.

Tool Used:

1. *Python: df.dropna(subset=['Invoice No '])*

2. *Excel: Filter → Blanks → Delete Rows*

Before

	A	B	C	D	E	F	G	H	
1	Transaction Date	Customer ID	Description	Stock Code	Invoice No	Quantity	Sales	Unit Price	
2	12/1/2020 08:26	17850	Dog and Puppy Pads	85123A	536365	1	15.3	15.3	
3	12/1/2020 08:34	13047	Pet Odor Eliminator	84879	536367	6	60.84	10.14	
4	12/1/2020 08:34	13047	Rechargeable Pet Nail Grinder	22960	536368	1	25.5	25.5	
5	12/1/2020 09:00	13748	Litter Slide Multi-Cat Scented Clumping Clay Cat Litter	22086	536371	14	214.2	15.3	
6	12/1/2020 09:02	17850	Dog and Puppy Pads	85123A	536373	1	15.3	15.3	
7	12/1/2020 09:32	15291	ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	22114	536376	8	165.6	20.7	
8	12/1/2020 09:32	17850	Dog and Puppy Pads	85123A	536375	1	15.3	15.3	
9	12/1/2020 09:37	14688	Milk-Bone MaroSnacks Dog Treats with Real Bone	22386	536378	2	23.4	11.7	
10	12/1/2020 09:37	14688	Pet Grooming Brush	20725	536378	2	19.8	9.9	
11	12/1/2020 09:41	15311	Litter Slide Multi-Cat Scented Clumping Clay Cat Litter	22086	536381	1	17.7	17.7	
12	12/1/2020 09:53	18074	NexGard Chew for Dogs	82484	536384	1	38.7	38.7	
13	12/1/2020 09:56	17420	Rechargeable Pet Nail Grinder	22960	536385	1	25.5	25.5	
14	12/1/2020 09:56	17420	Rechargeable Pet Nail Grinder	22960	536385	1	25.5	25.5	
14	12/1/2020 09:57	16029	Earth Rated Dog Poop Bags	85099B	536386	17	168.3	9.9	
15	12/1/2020 09:58	16029	ProBiotic Supplements for Dogs	79321	536387	32	733.44	22.92	
16	12/1/2020 10:19	17511	Dog and Puppy Pads	85123A	536390	11	168.3	15.3	
17	12/1/2020 10:19	17511	Earth Rated Dog Poop Bags	85099B	536390	17	168.3	9.9	
18	12/1/2020 10:19	17511	Rechargeable Pet Nail Grinder	22960	536390	2	45	22.5	
19	12/1/2020 10:19	17511	Sheba Perfect Portions Pat Wet Cat Food	22197	536390	17	73.44	4.32	
20	12/1/2020 10:29	13705	Indoor Pet Camera (Wi-Fi)	22502	536392	1	35.7	35.7	
21	12/1/2020 10:29	13705	Pet Odor Eliminator	84879	536392	3	30.42	10.14	
22	12/1/2020 10:39	13408	Dog and Puppy Pads	85123A	536394	6	91.8	15.3	
23	12/1/2020 10:47	13767	ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	22114	536395	2	47.4	23.7	
24	12/1/2020 10:47	13767	Pet Odor Eliminator	84879	536395	6	60.84	10.14	
25	12/1/2020 10:51	17850	Dog and Puppy Pads	85123A	536396	1	15.3	15.3	
26	12/1/2020 10:52	13448	ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	22114	536398	1	23.7	23.7	
27	12/1/2020 11:21	15862	Dog and Puppy Pads	85123A	536401	1	17.7	17.7	

After

	A	B	C	D	E	F	G	H	
1	Transaction Date	Customer ID	Description	Stock Code	Invoice No	Quantity	Sales	Unit Price	
2	12/1/2020 08:26	17850	Dog and Puppy Pads	85123A	536365	1	15.3	15.3	
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22	12/1/2020 10:39	13408	Dog and Puppy Pads	85123A	536394	6	91.8	15.3	
23	12/1/2020 10:47	13767	ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	22114	536395	2	47.4	23.7	
24	12/1/2020 10:47	13767	Pet Odor Eliminator	84879	536395	6	60.84	10.14	
25	12/1/2020 10:51	17850	Dog and Puppy Pads	85123A	536396	1	15.3	15.3	
26	12/1/2020 10:52	13448	ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	22114	536398	1	23.7	23.7	
27	12/1/2020 11:21	15862	Dog and Puppy Pads	85123A	536401	1	17.7	17.7	

2. Data Cleaning *State Region Mapping Table*

- **Standardize State Names**

Converted Order State values to lowercase and removed spaces.

Tool Used:

1. *Python: `dff["Order State"] = dff["Order State"].str.lower().str.strip()`*
2. *Excel: LOWER() function + TRIM()*

- **Check for Duplicated Rows**

Identified total number of fully duplicated rows.

Tool Used:

1. *Python: `dff.duplicated().sum()`*
2. *Excel: Conditional Formatting → Highlight Duplicates*

- **Remove Duplicated Rows**

Removed duplicate rows to maintain data integrity.

Tool Used:

1. *Python: `dff = dff.drop_duplicates()`*
2. *Excel: Remove Duplicates Tool*

Before

	A	B	C	D	
1	Order State	State Abbreviations	Region	State	
2	AE	AE	Other	Armed Forces Europe	
3	ak	AK	Other	Alaska	
4	AK	AK	Other	Alaska	
5	AL	AL	East	Alabama	
6	ALABAMA	AL	East	Alabama	
7	Alaska	AK	Other	Alaska	
8	AR	AR	Central	Arkansas	
9	Arizona	AZ	West	Arizona	
10	ARIZONA	AZ	West	Arizona	
11	Arkansas	AK	Other	Alaska	
12	AZ	AZ	West	Arizona	
13	CA	CA	West	California	
14	ca	CA	West	California	
15	Ca	CA	West	California	
16	Ca.	CA	West	California	
17	California	CA	West	California	
18	CALIFORNIA	CA	West	California	
19	california	CA	West	California	
20	CO	CO	Central	Colorado	
21	co	CO	Central	Colorado	
22	Co	CO	Central	Colorado	
23	COLORADO	CO	Central	Colorado	
24	Colorado	CO	Central	Colorado	
25	CONNECTICUT	CT	East	Connecticut	

After

	A	B	C	D	
1	Order State ▼	State Abbreviations ▼	Region ▼	State ▼	
2	ae	AE	Other	Armed Forces Europe	
3	ak	AK	Other	Alaska	
4	al	AL	East	Alabama	
5	alabama	AL	East	Alabama	
6	alaska	AK	Other	Alaska	
7	ar	AR	Central	Arkansas	
8	arizona	AZ	West	Arizona	
9	arkansas	AK	Other	Alaska	
10	az	AZ	West	Arizona	
11	ca	CA	West	California	
12	ca.	CA	West	California	
13	california	CA	West	California	
14	co	CO	Central	Colorado	
15	colorado	CO	Central	Colorado	
16	connecticut	CT	East	Connecticut	
17	ct	CT	East	Connecticut	
18	dc	DC	East	District of Columbia	
19	de	DE	East	Delaware	
20	delaware	DE	East	Delaware	
21	district of columbia	DC	East	District of Columbia	
22	fl	FL	East	Florida	
23	florida	FL	East	Florida	
24	ga	GA	East	Georgia	
25	georgia	GA	East	Georgia	
26	hawaii	HI	Other	Hawaii	
27	hi	HI	Other	Hawaii	

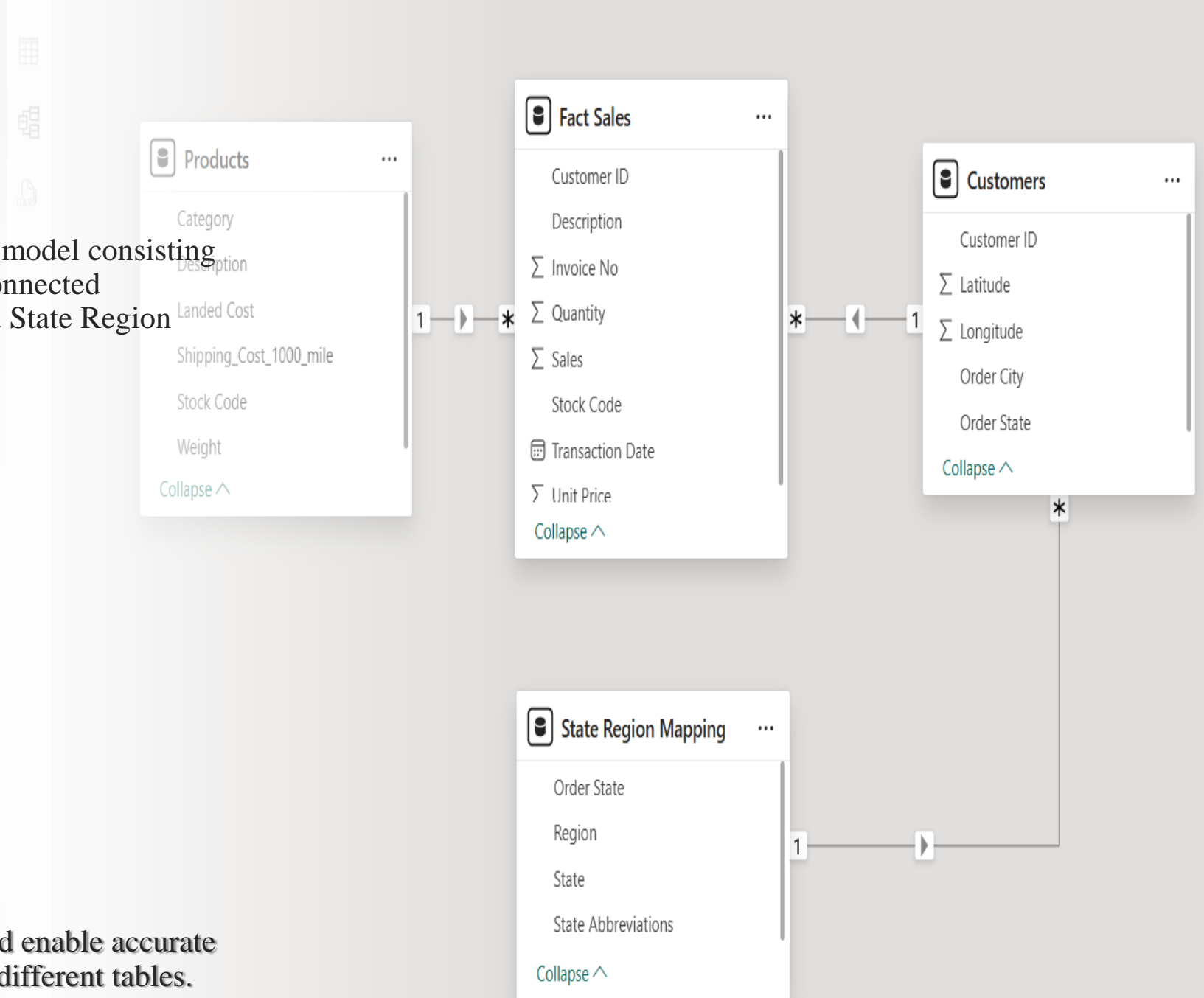
3. Data Modeling

Data Model Overview:

This data model follows a star schema data model consisting of Fact Sales as the central fact table and connected dimension tables: Products, Customers, and State Region Mapping.

- Products ↔ Fact Sales:
Relationship Type: One-to-Many
Join Key: Stock Code
- Customers ↔ Fact Sales:
Relationship Type: One-to-Many
Join Key: Customer ID
- State Region Mapping ↔ Customers:
Relationship Type: One-to-Many
Join Key: Order State

These relationships ensure data integrity and enable accurate aggregation, filtering, and reporting across different tables.



4. Analysis Questions

What are the total sales per product?

What are the total quantity sold per product?

What is the overall profit margin for the store?

What is the total number of invoices?

What is the hour with the highest number of invoices/sales?

What is the day with the highest number of invoices/sales?

Where are most of the customers located?

How does product weight impact shipping cost and landed cost?

How does the shipping cost impact the overall landed cost of products?

What is the month with the highest total sales?

How do total sales vary across the four quarters of the year?

How does sales volume vary during the day?

Which Top 3 products achieved the highest total sales?



Row Labels	Sum of Sales
Qtr1	253496.76
Qtr2	364747.14
Qtr3	355481.82
Qtr4	580184.1
Grand Total	1553909.82

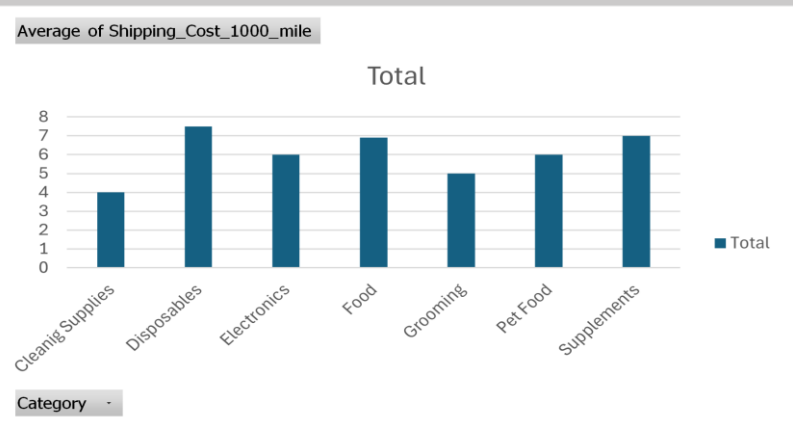
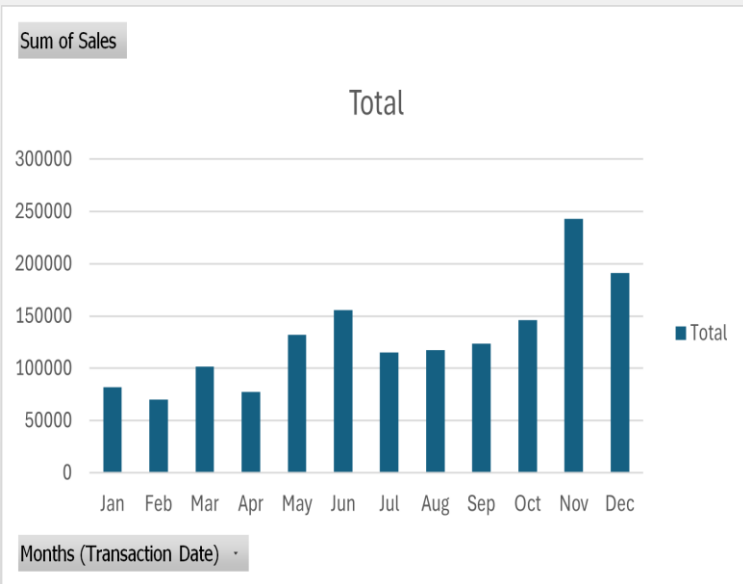
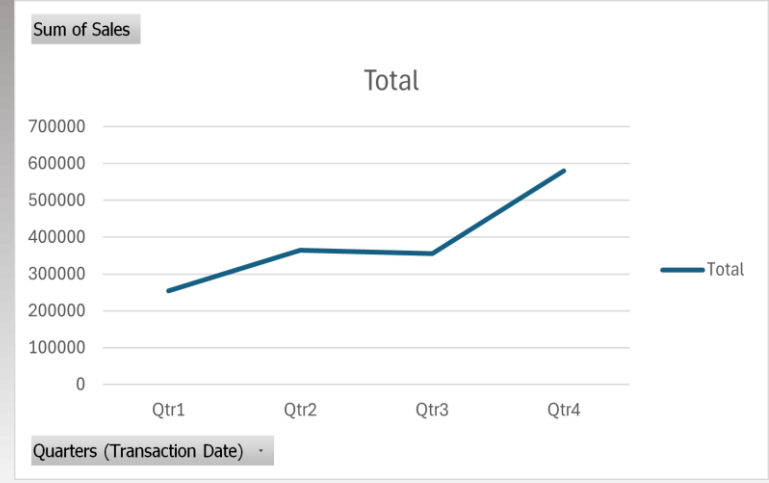
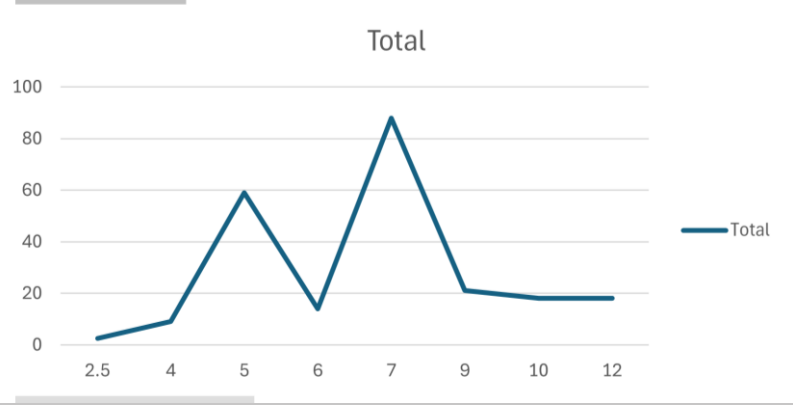
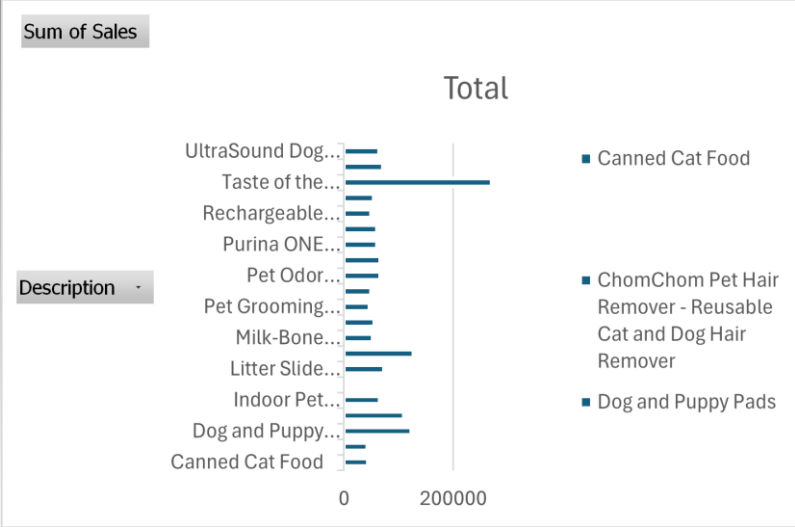
M	N
Row Labels	Sum of Sales
Jan	82047.36
Feb	69912.3
Mar	101537.1
Apr	77076.18
May	132201.18
Jun	155469.78
Jul	114848.88
Aug	117064.08
Sep	123568.86
Oct	145888.08
Nov	243103.32
Dec	191192.7
Grand Total	1553909.82

Row Labels	Sum of Sales	Row Labels	Sum of Quantity
Canned Cat Food	44164.44	Canned Cat Food	2064
ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	42300.72	ChomChom Pet Hair Remover - Reusable Cat and Dog Hair Remover	1255
Dog and Puppy Pads	122812.8	Dog and Puppy Pads	7105
Earth Rated Dog Poop Bags	109288.98	Earth Rated Dog Poop Bags	9023
Indoor Pet Camera	65345.46	Indoor Pet Camera	541
Indoor Pet Camera (Wi-Fi)	2516.82	Indoor Pet Camera (Wi-Fi)	61
Litter Slide Multi-Cat Scented Clumping Clay Cat Litter	73287	Litter Slide Multi-Cat Scented Clumping Clay Cat Litter	3604
Memory Foam Pet Beds for Small, Medium, and Large Dogs and Cats	127641.96	Memory Foam Pet Beds for Small, Medium, and Large Dogs and Cats	3823
Milk-Bone MaroSnaaks Dog Treats with Real Bone	52249.92	Milk-Bone MaroSnaaks Dog Treats with Real Bone	4168
NexGard Chew for Dogs	55094.46	NexGard Chew for Dogs	1347
Pet Grooming Brush	46314	Pet Grooming Brush	3990
Pet Hair Remover	49549.08	Pet Hair Remover	3930
Pet Odor Eliminator	65855.34	Pet Odor Eliminator	6724
ProBiotic Supplements for Dogs	65991.42	ProBiotic Supplements for Dogs	1972
Purina ONE SmartBlend Natural Adult Chicken 10lb	60165.18	Purina ONE SmartBlend Natural Adult Chicken 10lb	1899
Purina Pro Plan Adult Sensitive Skin	60610.14	Purina Pro Plan Adult Sensitive Skin	1324
Rechargeable Pet Nail Grinder	49785.18	Rechargeable Pet Nail Grinder	1782
Sheba Perfect Portions Pat Wet Cat Food	54353.82	Sheba Perfect Portions Pat Wet Cat Food	9911
Taste of the Wild High Prairie Grain-Free Dry Dog Food 40lb	270364.38	Taste of the Wild High Prairie Grain-Free Dry Dog Food 40lb	3428
Templation Soft Cat Treats	71502.54	Templation Soft Cat Treats	5382
UltraSound Dog Barking Deterrent	64716.18	UltraSound Dog Barking Deterrent	1965
Grand Total	1553909.82	Grand Total	75298

I	J
Row Labels	Sum of Landed Cost
2.5	2.5
4	9
5	59
6	14
7	88
9	21
10	18
12	18
Grand Total	229.5

Row Labels	Average of Shipping_Cost_1000_mile
Cleanig Supplies	4
Disposables	7.5
Electronics	6
Food	6.9
Grooming	5
Pet Food	6
Supplements	7
Grand Total	6.305555556

4. Exploratory Data Analysis " EDA "



4. Exploratory Data Analysis " EDA "

5. Dashboard Blueprint

Pets Store Dashboard

Total Sales

Total Quantity

Count of
Invoice No

Profit Margin

Top Sales
Hour

← Cards

Slicers →

Year
State
City
Category
Description



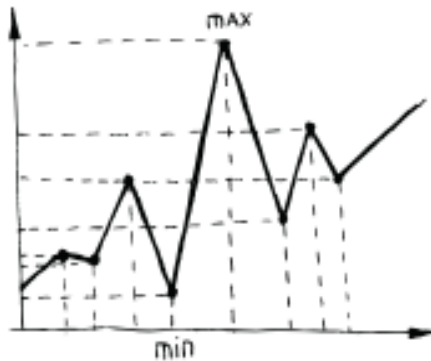
Customer Distribution



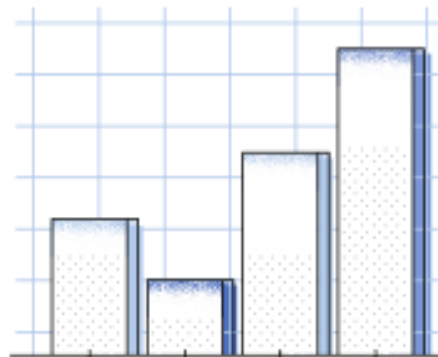
Top 3 States



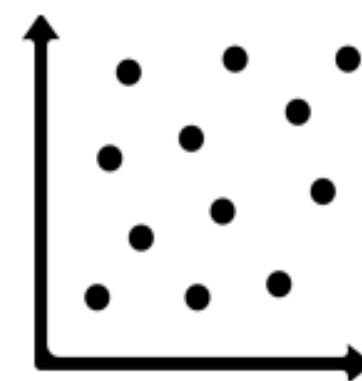
Top 3 City



Sales Over Time

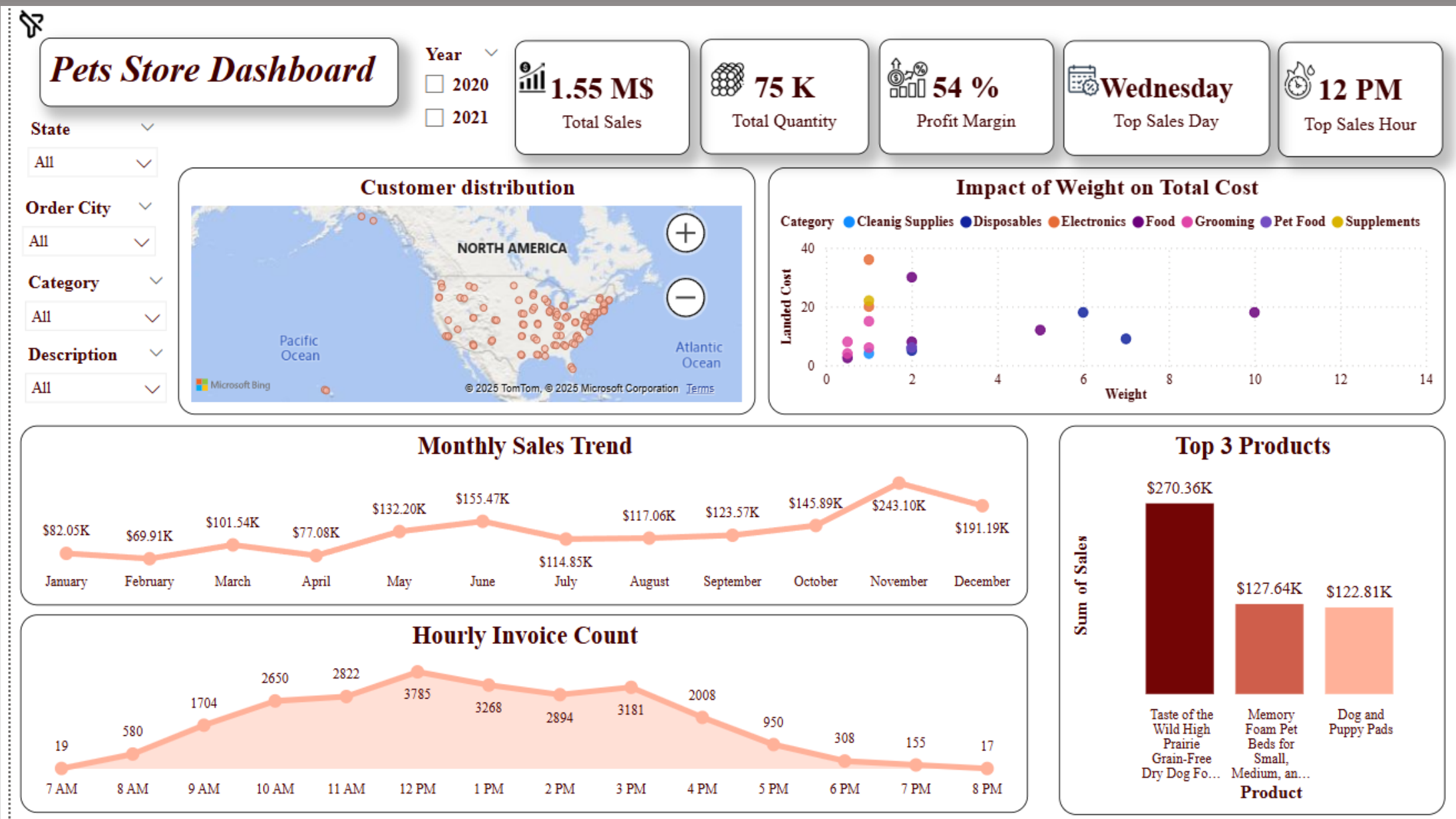


Top 3 Products



Impact of Weight on Total Cost

6. Visualization "Dashboard"



Dashboard Insights

- Total sales were *\$1.55 million* with *75K* units sold.
- The top-selling product is "Taste of the Wild High Prairie Grain-Free" with sales worth *\$270K*, significantly higher than other products.
- The top 3 products together generate a large percentage of the total revenue, so that **a few products generate most of the sales.**
- **November** recorded the highest total sales at *\$243K*.
- There is a clear peak in **Q4 (October - December)** compared to the other quarters, which suggests that customer spending is higher towards the **end** of the year.
- The least sales month appears to be **April**.
- Peak sales time is *12 PM*. There is **less** invoice activity in early morning hours (i.s., **7 AM – 9 AM**), with the **peaks in early afternoons (1 PM – 3 PM)**.
- The customer base is spread across multiple states in the USA, with noticeable clusters in **urban areas**, indicating high demand regions.
- There is a **partial** impact of product weight on the landed cost, but other factors such as product category or shipping distance might also influence the final cost, leading to exceptions where **lighter products incur higher costs.**

7.

Recommendations

1. Optimize Shipping Costs Based on Weight

Since weight affects the landed cost to a certain degree, negotiate the cost of shipping with logistic providers for light products with unusually high prices.

Recommendation: Implement a tiered shipping policy divided by weight tiers to reduce the costs.

7. Recommendations

2. Focus on Best-Selling Products

Top 3 products contribute significantly to overall sales (e.g., "Taste of the Wild High Prairie Grain-Free" alone contributed \$270K).

Recommendation: Increase inventory and marketing for these high-selling products to maximize revenue.



7. Recommendations

3. Seasonal Sales Strategy

Peak sales occur in November (\$243K) — probably due to holiday season.

Recommendation: Organize marketing campaigns and stock in advance of Q4, especially October to December, to capitalize on peak demand.



7. Recommendations

4. Sales Peak Management

High-peak invoices raised at around 1 PM and 3 PM, especially on Wednesdays, which is the busiest sales day.

Recommendation: Maintain maximum staff and system readiness every Wednesday, particularly at 1 PM and 3 PM, to handle the maximum volume of sales during peak hours efficiently and enhance the customer experience.



7. Recommendations

5. Geographical Targeting

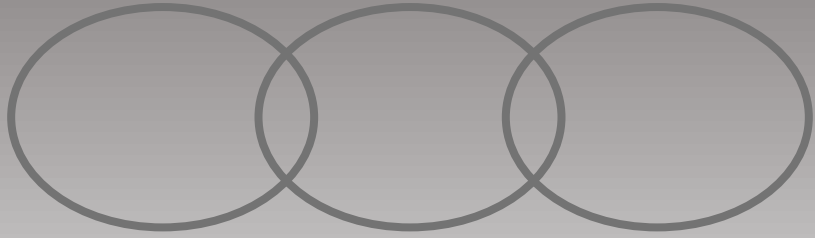
Customer distribution is spread across the U.S.

Recommendation: Target densely ordered cities or states for localized advertising and analyze regions with thin orders to find the opportunities for expansion.



Project Resources

- [Data Cleaning " Python "](#)
- [Data Cleaning " Excel "](#)
- [Exploratory Data Analysis](#)
- [E-Commerce Dataset](#)
- [Blueprint](#)
- [Dashboard](#)
- [Interactive Dashboard](#)
- [Pets Store Presentation](#)



Any Questions ?

THANK YOU