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## **DATA VISUALIZATION**

**Course Code: CAP483**

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# 1. Abstract :

The rapid growth of e-commerce in India has transformed how customers purchase products online, making data-driven decision-making essential for improving operational efficiency and customer satisfaction. This project focuses on analyzing Amazon India sales data using Tableau to uncover meaningful business insights related to product demand, category performance, shipping behavior, regional variations, and revenue distribution.

The analysis includes extensive preprocessing, data cleaning, aggregation, and visualization to understand trends in quantity sold, sales amount, courier performance, and state-wise contributions. Multiple visualization techniques such as bar charts, maps, time-series graphs, waterfall charts, and Pareto analysis were used to highlight patterns that directly impact business profitability.

Key findings reveal which product categories dominate revenue, which states contribute the largest share of orders, how weekly trends influence sales, and how courier and shipping performance affect delivery outcomes. The report also identifies top-performing and underperforming regions, customer demand patterns, and 80/20 revenue distribution using Pareto analysis.

This study demonstrates how visual analytics can simplify complex datasets, enabling business teams to make better inventory decisions, improve logistic planning, enhance customer service, and maximize revenue. The insights derived from the Tableau dashboards can help organizations optimize operations and design strategies for scalable growth in India's competitive e-commerce market.

J	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	Index	Order ID	Date	Status	Fulfillment	Sales Channel	ship-service-level	Style	SKU	Category	Size	ASIN	Courier	Status	Qty	currency	Amount	ship-city	ship-state	ship-postal-code	ship-country	promotion-its	B2B	fulfilled-by	Unassigned: 22
2	0	405-8078784-5731545	04-30-22	Cancelled	Merchant	Amazon.in	Standard	SET389	SET389-KR-NP-S	Set	S	B09KXBD7Z			0	INR	647.62	MUMBAI	MAHARASHTRA	400081	IN		FALSE	Easy Ship	
3	1	171-9198151-1101146	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	JNE3781	JNE3781-KR-XXOL	kurta	3XL	B09K3WFS32	Shipped		1	INR	406	BENGALURU	KARNATAKA	560085	IN	Amazon PLOC Free	FALSE	Easy Ship	
4	2	404-0607676-7272164	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3373	JNE3373-KR-XL	kurta	XL	B07W4W4HD	Shipped		1	INR	329	NAU MUMBAI	MAHARASHTRA	410212	IN	IN Core Free Shippi	TRUE		
5	3	403-9615377-8133951	04-30-22	Cancelled	Merchant	Amazon.in	Standard	J0341	J0341-DR-L	Western Drs	L	B099RRC778			0	INR	753.33	PUDUCHERRY	PUDUCHERRY	605008	IN		FALSE	Easy Ship	
6	4	407-1069790-7240320	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3671	JNE3671-TU-XXOL	Top	3XL	B086714B2P	Shipped		1	INR	574	CHENNAI	TAMIL NADU	600073	IN		FALSE		
7	5	404-1409984-4578768	04-30-22	Shipped	Amazon	Amazon.in	Standard	SET264	SET264-KR-NP-XL	Set	XL	B08Y7X2D50	Shipped		1	INR	824	GHAZIABAD	UTTAR PRADESH	201102	IN	IN Core Free Shippi	FALSE	Easy Ship	
8	6	408-5748499-6859555	04-30-22	Shipped	Amazon	Amazon.in	Expedited	J0095	J0095-SET-L	Set	L	B08CHMWNBN	Shipped		1	INR	653	CHANDIGARH	CHANDIGARH	160036	IN	IN Core Free Shippi	FALSE		
9	7	408-7807733-3785945	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	JNE3405	JNE3405-KR-S	kurta	S	B081W4G4Q	Shipped		1	INR	399	HYDERABAD	TELANGANA	500032	IN	Amazon PLOC Free	FALSE	Easy Ship	
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11	9	402-4303761-0311520	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3481	JNE3481-KR-XXL	kurta	XXL	B08B3ZF5M4	Shipped		1	INR	363	Chennai	TAMIL NADU	600041	IN		FALSE		
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14	12	405-5513694-8146786	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	JNE3405	JNE3405-KR-XS	kurta	XS	B08LDCMYXJ	Shipped		1	INR	399	Amravati	MAHARASHTRA	444608	IN	Amazon PLOC Free	FALSE	Easy Ship	
15	13	408-7955685-3083534	04-30-22	Shipped	Amazon	Amazon.in	Expedited	SET182	SET182-KR-OH-XS	Set	XS	B085H9477	Shipped		1	INR	657	MUMBAI	MAHARASHTRA	400053	IN		FALSE		
16	14	408-1268376-1902082	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	J0351	J0351-SET-L	Set	L	B096SSQY4F	Shipped		1	INR	771	MUMBAI	MAHARASHTRA	400053	IN	Amazon PLOC Free	FALSE	Easy Ship	
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18	16	408-9379318-6555554	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3721	JNE3721-KR-XXL	kurta	XXL	B099FC1650	Shipped		1	INR	329	JAIPIUR	RAJASTHAN	302020	IN	IN Core Free Shippi	FALSE		
19	17	401-9013803-8009918	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3405	JNE3405-KR-XS	kurta	XS	B08Y7X2D50	Shipped		1	INR	399	NEW DELHI	DELHI	110074	IN		FALSE		
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22	20	403-9607769-4716360	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3795	JNE3795-KR-XXOL	kurta	3XL	B09M9MFF3	Shipped		1	INR	517	TIRUCHIRAPPALLI	TAMIL NADU	620018	IN	IN Core Free Shippi	FALSE		
23	21	404-8404550-5960205	04-30-22	Shipped	Amazon	Amazon.in	Expedited	SET343	SET343-KR-NP-M	Set	M	B09KXV48N6	Shipped		1	INR	666	BENGALURU	KARNATAKA	560049	IN	IN Core Free Shippi	FALSE		
24	22	171-1305077-2813904	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3373	JNE3373-KR-L	kurta	L	B082W3VH17	Shipped		1	INR	376	HYDERABAD	TELANGANA	500077	IN		FALSE		
25	23	404-8019946-2909948	04-30-22	Cancelled	Merchant	Amazon.in	Standard	SET291	SET291-KR-PP-M	Set	M	B099NK5YVG			0	INR	570.48	pune	MAHARASHTRA	411044	IN		FALSE	Easy Ship	
26	24	402-3384087-4005164	04-30-22	Shipped	Amazon	Amazon.in	Expedited	MEN5002	MEN5002-KR-L	kurta	L	B08YYQNSR	Shipped		1	INR	499	TEZPUR	ASSAM	784001	IN	IN Core Free Shippi	FALSE		
27	25	405-8191138-5176318	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	NW030	NW030-TP-PJ-XS	Set	XS	B0962G2GR2	Shipped		1	INR	562	RANCHI	JHARKHAND	834002	IN	Amazon PLOC Free	FALSE	Easy Ship	
28	26	403-9620474-9657916	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	JNE3415	JNE3415-KR-XXOL	kurta	3XL	B08Z6W9W3	Shipped		1	INR	299	BILASPUR	CHHATTISGARH	485001	IN	Amazon PLOC Free	FALSE	Easy Ship	
29	27	408-3484251-4901990	04-30-22	Shipped	Amazon	Amazon.in	Expedited	PNE2199	PNE2199-KR-N-4XL	kurta	4XL	B081C236X1	Shipped		1	INR	459	PUNE	MAHARASHTRA	411052	IN		FALSE		
30	28	405-7758802-4729903	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3567	JNE3567-KR-M	kurta	M	B08KRVX1QR	Shipped		1	INR	399	BENGALURU	KARNATAKA	560037	IN	IN Core Free Shippi	FALSE	Easy Ship	
31	29	404-5963402-8801953	04-30-22	Cancelled	Merchant	Amazon.in	Standard	JNE2132	JNE2132-KR-368-XXI	kurta	3XL	B07G3CND8			0			GUWAHATI	ASSAM	781003	IN		FALSE		
32	30	171-9640274-9201563	04-30-22	Shipped	Amazon	Amazon.in	Expedited	J0341	J0341-DR-S	Western Drs	S	B090NR7612	Shipped		1	INR	791	THIRUVARUR	TAMIL NADU	613704	IN	IN Core Free Shippi	FALSE		
33	31	403-7056319-0976661	04-30-22	Shipped	Amazon	Amazon.in	Expedited	MEN6009	MEN6009-KR-XL	kurta	XL	B08YTCPPX	Shipped		1	INR	499	LUCKNOW	UTTAR PRADESH	226010	IN	IN Core Free Shippi	FALSE		
34	32	404-9632124-1107550	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	J0011	J0011-LCD-M	Set	M	B08B3YH005	Shipped		1	INR	1233	VISHAHAFATNAN	ANDHRA PRADESH	530018	IN	Amazon PLOC Free	FALSE	Easy Ship	
35	33	402-1485437-0576556	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	JNE3786	JNE3786-KR-M	kurta	M	B08K3R94V	Shipped		1	INR	517	JAIPIUR	ODISHA	754001	IN	Amazon PLOC Free	FALSE	Easy Ship	
36	34	404-7774085-3780310	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JNE3373	JNE3373-KR-XL	kurta	XL	B082W8XW1	Shipped		1	INR	376	HYDERABAD	TELANGANA	500028	IN		FALSE		
37	35	402-2764952-14822318	04-30-22	Shipped	-De Merchant	Amazon.in	Standard	MEN5001	MEN5001-KR-XL	kurta	XL	B08YRHXJ26	Shipped		1	INR	499	LUCKNOW	UTTAR PRADESH	226018	IN	Amazon PLOC Free	FALSE	Easy Ship	

## 2. Keywords :

Here are 15 keywords exactly in the style of your sample—they match your Amazon Sales project:

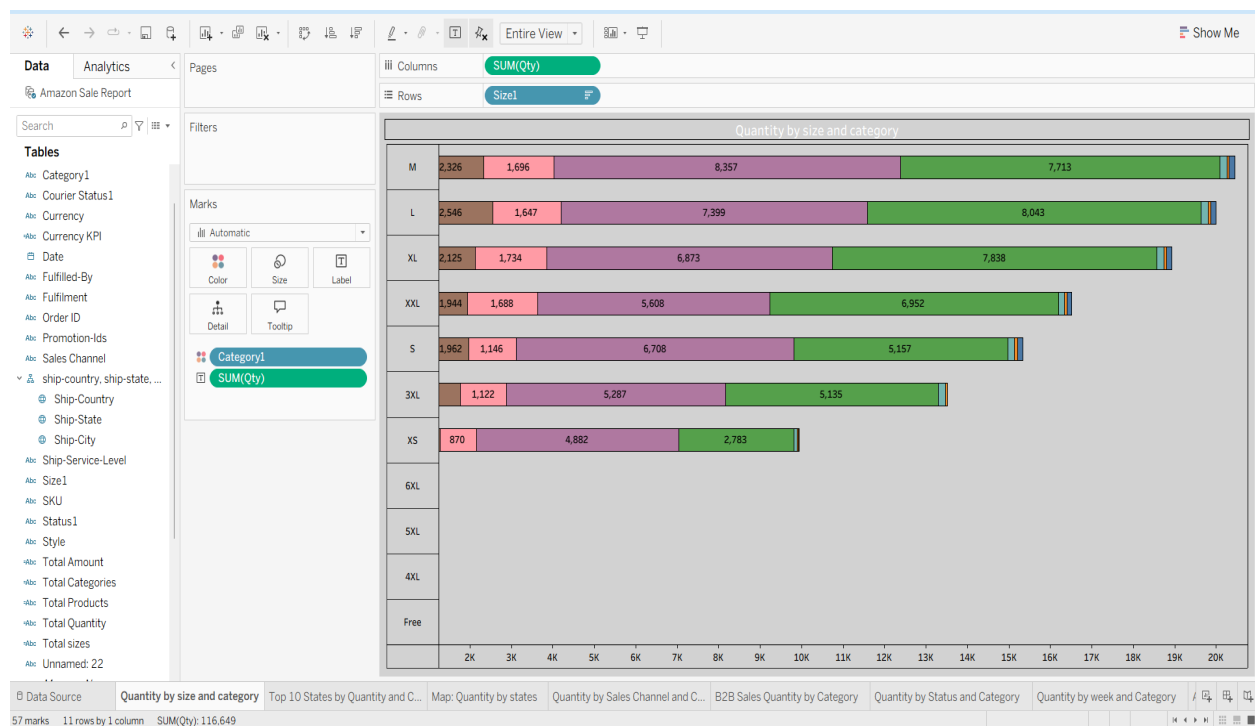
1. **E-commerce Sales:** Online product purchases made through the Amazon India marketplace.
2. **Product Categories:** Different groups of items such as Clothing, Electronics, Home Appliances, etc.
3. **Order Quantity:** Total number of units sold per category, state, or week.
4. **Sales Revenue:** The total monetary value generated from sold products.
5. **State-wise Analysis:** Comparing sales performance across different Indian states.
6. **Courier Performance:** Delivery speed, service level, and order shipment status by courier partners.
7. **Shipping Status:** Order completion stages like Delivered, Shipped, In Transit, Cancelled, etc.
8. **Weekly Trend Analysis:** Studying sales patterns across different weeks of the year.
9. **Waterfall Chart:** A breakdown showing how each state contributes positively or negatively to total quantity.
10. **Pareto Analysis (80/20 Rule):** Identifying the top categories generating the majority of revenue.
11. **Visualization Analytics:** Using charts and dashboards to interpret large datasets.
12. **Business Insights:** Actionable findings that support decision-making for operations and marketing.
13. **Customer Demand Patterns:** Understanding what products customers buy most frequently.
14. **Data Preprocessing:** Cleaning, transforming, and preparing the dataset for analysis.
15. **Tableau Dashboard:** A graphical interface used for interactive data visualization.

### 3. Introduction :

Amazon India is one of the largest e-commerce platforms, serving millions of customers across the country. With thousands of product categories, varying customer preferences, and diverse shipping conditions, analyzing sales data becomes essential for understanding business performance.

This report uses Tableau to analyze a large Amazon India sales dataset and uncover insights related to product demand, delivery patterns, category-wise revenue, and regional variations in sales. The project also focuses on identifying improvement areas in logistics and customer experience by studying shipment service levels, courier efficiency, and quantity patterns across states.

The objective is to convert raw sales data into meaningful business information through visual analytics. Using interactive Tableau dashboards, the analysis provides clarity on which products sell the most, which states contribute the highest revenue, how weekly performance changes over time, and how courier reliability affects order delivery. These insights can help businesses optimize inventory, manage supply chains, and enhance customer satisfaction.



## 4. Problem Statement :

In a highly competitive e-commerce market, understanding sales trends and customer purchase behavior is crucial for business growth. Amazon India generates large volumes of sales data every day, but without proper analysis, it becomes difficult to identify:

- Which product categories generate the highest revenue
- Which states contribute the most to total sales
- How shipping performance and courier partners affect delivery outcomes
- How weekly trends influence the overall demand cycle
- Which factors lead to order delays, cancellations, or low sales performance

The challenge is to convert this complex dataset into actionable insights that can help Amazon sellers, supply chain managers, and marketing teams make better business decisions.

This project aims to solve these challenges through Tableau by presenting clear, interactive dashboards that explain category-wise performance, courier efficiency, state-level patterns, and revenue distribution using visual analytics.

Currency INR	Total Quantity 1,16,649	Total Amount 78,592,678	Category1 (All)	Total Products 7,190	Total sizes 11	Total Categories 9
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## 5. Literature Review :

Several studies and industry analyses highlight the importance of data visualization in improving e-commerce business decisions. Research has shown that:

1. **Sales forecasting and trend analysis** improve inventory planning and reduce stockouts.
2. **Geographical visualizations** help businesses identify regional demand, enabling targeted marketing and resource allocation.
3. **Pareto analysis (80/20 rule)** is widely used in retail to find high-impact categories responsible for most revenue.
4. **Waterfall charts** help break down contributions of different regions or categories to overall performance.
5. **Courier performance and delivery speed** directly influence customer satisfaction and repeat purchases.
6. Studies from platforms like Flipkart, Alibaba, and Amazon highlight that **visual dashboards** significantly improve decision-making by simplifying complex datasets.

This project aligns with these findings by using Tableau to conduct category, regional, courier, and weekly trend analysis to generate business-ready insights.

## 6. Objectives :

The main objectives of the Amazon India Sales Tableau project are:

1. **To analyze category-wise performance** of products in terms of sales quantity and revenue.
2. **To identify top-performing and low-performing states** through state-wise sales distribution.
3. **To study shipping and courier performance** and understand its impact on delivery effectiveness.
4. **To examine weekly sales trends** for understanding customer buying patterns over time.
5. **To apply advanced visualizations** such as Waterfall and Pareto charts to derive deeper insights.
6. **To assist businesses** in making data-driven decisions related to inventory, operations, and marketing.
7. **To summarize key findings** that highlight improvement areas and opportunities for revenue growth.



## 7. Dataset Description :

The dataset used for this project contains detailed Amazon India sales records, including:

### Number of Rows & Columns

- **Rows:** (128976)
- **Columns:** (24)

### Important Columns in the Dataset

- **Date** – Order date
- **State** – Location from where the order was placed
- **Category** – Product type
- **Size** – Product size (S, M, L, etc.)
- **Qty** – Total quantity purchased
- **Amount** – Total sales amount
- **Status** – Order delivery status (Delivered, Shipped, Cancelled, Returned...)
- **Courier Status** – Delivery partner status
- **Ship Service Level** – Prime / Standard delivery

### Columns Used in This Project

For analysis, we mainly used:

- State
- Category

- Week Number (created in preprocessing)

These columns were most relevant for finding meaningful insights such as category performance, state-level contribution, and shipment behavior.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Index	Order ID	Date	Status	Fulfillment	Sales Channel	Ship Service Level	Style	SKU	Category	Size	ASIN	Courier	Status	Qty	currency	Amount	ship-city	ship-state	ship-postal-code	ship-country	promotion-id	B2B	Fulfilled by	Unmarked 22	
1	0 405-8075784-5731455	04-30-22	Cancelled	Merchant	Amazon.in	Standard	SET389	SET389-KR-NP-S	Set	S	B09KVBDD72	Shipper	1	INR	647.62	MUMBAI	MAHARASHTRA	400081	IN	Core Free Shippi	FALSE	Easy Ship			
2	1 171-9198151-111146	04-30-22	Shipped	De Merchant	Amazon.in	Standard	IN38781	IN38781-KR-X00L	kurtas	XL	B09K3WVF32	Shipper	1	INR	406	BENGALURU	KARNATAKA	560085	IN	Amazon PLOC	FALSE	Easy Ship			
3	2 404-0687676-7273146	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN33371	IN33371-KR-XL	kurtas	XL	B07WMA4V4D	Shipper	1	INR	329	NAVI MUMBAI	MAHARASHTRA	410210	IN	IN Core Free Shippi	TRUE	Easy Ship			
4	3 403-9615377-6133951	04-30-22	Cancelled	Merchant	Amazon.in	Standard	JO341	JO341-DR-L	Western DR-L	3XL	B09NNCTC78	Shipper	1	INR	753.33	PUDUCHERRY	PUDUCHERRY	605008	IN	IN Core Free Shippi	FALSE	Easy Ship			
5	4 407-1069790-7243020	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN3671	IN3671-TU-X00L	Top	XL	B086714B2P	Shipper	1	INR	574	CHENNAI	TAMIL NADU	600103	IN	IN Core Free Shippi	FALSE	Easy Ship			
6	5 404-1490884-4578765	04-30-22	Shipped	Amazon	Amazon.in	Expedited	SET264	SET264-KR-NP-XL	Set	XL	B08YNTJ0SG	Shipper	1	INR	824	GHAZIABAD	UTTAR PRADESH	201778	IN	IN Core Free Shippi	FALSE	Easy Ship			
7	6 405-748499-6895955	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JO095	JO095-SET-L	kurtas	L	B08C8PHW3N	Shipper	1	INR	653	HANDIGARH	CHANDIGARH	160038	IN	IN Core Free Shippi	FALSE	Easy Ship			
8	7 405-7807738-7788945	04-30-22	Shipped	De Merchant	Amazon.in	Standard	IN3405	IN3405-KR-S	kurtas	S	B08YNNM4QZ	Shipper	1	INR	359	HYDERABAD	TELANGANA	500032	IN	Amazon PLOC	FALSE	Easy Ship			
9	8 404-6434304-5320188	04-30-22	Cancelled	Merchant	Amazon.in	Standard	SET200	SET200-KR-NP-XL	Set	3XL	B08619322Z	Shipper	1	INR	3270.9	KANPUR	UTTAR PRADESH	208002	IN	IN Core Free Shippi	FALSE	Easy Ship			
10	9 402-4392761-0111520	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN3461	IN3461-KR-X00L	kurtas	XL	B08B3CF5M4	Shipper	1	INR	363	Chennai	TAMIL NADU	600043	IN	IN Core Free Shippi	FALSE	Easy Ship			
11	10 407-5633625-6970741	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN3160	IN3160-KR-G-S	kurtas	S	B07X3YQJL1	Shipper	1	INR	685	CHENNAI	TAMIL NADU	600019	IN	IN Core Free Shippi	FALSE	Easy Ship			
12	11 171-4638481-6326716	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN3500	IN3500-KR-XS	kurtas	XS	B08E11TJYJ	Shipper	1	INR	364	Noida	UTTAR PRADESH	201403	IN	IN Core Free Shippi	FALSE	Easy Ship			
13	12 405-5513694-4167868	04-30-22	Shipped	De Merchant	Amazon.in	Standard	IN3405	IN3405-KR-XS	kurtas	XS	B0861XMD3M	Shipper	1	INR	399	Amravati	MAHARASHTRA	443036	IN	Amazon PLOC	FALSE	Easy Ship			
14	13 408-7955685-3083534	04-30-22	Shipped	Amazon	Amazon.in	Expedited	SET182	SET182-KR-DH-XS	Set	XS	B08H5H9477	Shipper	1	INR	657	MUMBAI	MAHARASHTRA	400053	IN	IN Core Free Shippi	FALSE	Easy Ship			
15	14 408-1298370-1923032	04-30-22	Shipped	De Merchant	Amazon.in	Standard	JO351	JO351-SET-L	Set	L	B09C5SQY4F	Shipper	1	INR	771	MUMBAI	MAHARASHTRA	400035	IN	Amazon PLOC	FALSE	Easy Ship			
16	15 405-4965581-9502319	04-30-22	Shipped	De Merchant	Amazon.in	Standard	PIN3368	PIN3368-KR-6XL	kurtas	6XL	B09P99F99V	Shipper	1	INR	544	GUNTAKAL	ANDHRA PRADESH	515081	IN	IN Core Free Shippi	FALSE	Easy Ship			
17	16 406-8797319-6555504	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN3721	IN3721-KR-XL	kurtas	XL	B08YNNR7G5	Shipper	1	INR	329	JAPPUR	RAJASTHAN	310201	IN	IN Core Free Shippi	FALSE	Easy Ship			
18	17 405-8013693-4945794	04-30-22	Cancelled	Merchant	Amazon.in	Standard	IN3405	IN3405-KR-XS	kurtas	XS	B08YNNM4QZ	Shipper	1	INR	359	NEW DELHI	DELHI	110074	IN	IN Core Free Shippi	FALSE	Easy Ship			
19	18 402-403058-5835511	04-30-22	Shipped	De Merchant	Amazon.in	Standard	SET295	IN3697-KR-X0L	kurtas	XL	B08613P3V5	Shipper	1	INR	458	Gurgaon	HARYANA	122004	IN	Amazon PLOC	FALSE	Easy Ship			
20	19 405-597658-1051546	04-30-22	Shipped	Amazon	Amazon.in	Expedited	SET254	SET254-KR-NP-XS	Set	XS	B08632DPL6	Shipper	1	INR	888	BENGALURU	KARNATAKA	560017	IN	IN Core Free Shippi	FALSE	Easy Ship			
21	20 405-9007769-0178360	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN3795	IN3795-KR-X00L	kurtas	XL	B09MMXV6FS	Shipper	1	INR	517	TRICHURAPPALI	TAMIL NADU	620018	IN	IN Core Free Shippi	FALSE	Easy Ship			
22	21 404-494550-5860325	04-30-22	Shipped	Amazon	Amazon.in	Expedited	SET345	SET345-KR-NP-XL	Set	M	B09KCV4B8N	Shipper	1	INR	666	BENGALURU	KARNATAKA	560040	IN	IN Core Free Shippi	FALSE	Easy Ship			
23	22 171-1305077-2819394	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN38373	IN38373-KR-L	kurtas	L	B08Z27GVH7	Shipper	1	INR	376	HYDERABAD	TELANGANA	500072	IN	IN Core Free Shippi	FALSE	Easy Ship			
24	23 404-6019946-2909948	04-30-22	Cancelled	Merchant	Amazon.in	Standard	SET291	SET291-KR-PP-M	Set	M	B09NN3SY5G	Shipper	1	INR	570.49	pune	MAHARASHTRA	411044	IN	IN Core Free Shippi	FALSE	Easy Ship			
25	24 402-3384087-4005164	04-30-22	Shipped	Amazon	Amazon.in	Expedited	MEN3030	MEN3030-KR-L	kurtas	XL	B08Y9YNNQ8	Shipper	1	INR	499	TEZPUR	ASSAM	784001	IN	IN Core Free Shippi	FALSE	Easy Ship			
26	25 405-89115-5817036	04-30-22	Shipped	De Merchant	Amazon.in	Standard	NW600	NW600-PP-XS	Set	XS	B08Y2QGR5R	Shipper	1	INR	582	RAJOURI	HARKHAND	834002	IN	Amazon PLOC	FALSE	Easy Ship			
27	26 403-8239474-9467916	04-30-22	Shipped	De Merchant	Amazon.in	Standard	IN3411	IN3411-KR-XL	kurtas	XL	B08Y9YNNQ8	Shipper	1	INR	299	BILASPUR	CHHATTISGARH	495001	IN	Amazon PLOC	FALSE	Easy Ship			
28	27 409-3484251-6901599	04-30-22	Shipped	Amazon	Amazon.in	Expedited	PIN2199	PIN2199-KR-A-X0L	kurtas	XL	B08J2D9X9L	Shipper	1	INR	459	PUNE	MAHARASHTRA	411055	IN	IN Core Free Shippi	FALSE	Easy Ship			
29	28 405-7755903-4729605	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN3567	IN3567-KR-M	kurtas	M	B08KRVX1QR	Shipper	1	INR	399	BENGALURU	KARNATAKA	560037	IN	IN Core Free Shippi	FALSE	Easy Ship			
30	29 404-9933042-8801952	04-30-22	Cancelled	Merchant	Amazon.in	Standard	IN2132	IN2132-KR-99-X0L	kurtas	XL	B07G3CND08	Shipper	1	INR	90	GUWAHATI	ASSAM	781003	IN	IN Core Free Shippi	FALSE	Easy Ship			
31	30 171-9040274-9291565	04-30-22	Shipped	Amazon	Amazon.in	Expedited	JO341	JO341-DR-S	Western DR-S	3XL	B09NNR7612	Shipper	1	INR	791	THIRUVAIRAPPUR	TAMIL NADU	613704	IN	IN Core Free Shippi	FALSE	Easy Ship			
32	31 403-7056319-0975961	04-30-22	Shipped	Amazon	Amazon.in	Expedited	MEN5009	MEN5009-KR-XL	kurtas	XL	B08YTYCPX5	Shipper	1	INR	499	LUCKNOW	UTTAR PRADESH	226010	IN	IN Core Free Shippi	FALSE	Easy Ship			
33	32 404-9632214-1107550	04-30-22	Shipped	De Merchant	Amazon.in	Standard	JO011	JO011-LCD-M	Set	M	B08B8YNGUS	Shipper	1	INR	1233	VISHAKHAPATNAM	ANDHRA PRADESH	516001	IN	Amazon PLOC	FALSE	Easy Ship			
34	33 402-1465437-0575956	04-30-22	Shipped	De Merchant	Amazon.in	Standard	IN3766	IN3766-KR-M	kurtas	M	B09K3K8W3V	Shipper	1	INR	517	JEPPIUR	ODISHA	754001	IN	Amazon PLOC	FALSE	Easy Ship			
35	34 404-774085-3780319	04-30-22	Shipped	Amazon	Amazon.in	Expedited	IN38373	IN38373-KR-XL	kurtas	XL	B08Z2WB8V3	Shipper	1	INR	376	HYDERABAD	TELANGANA	500028	IN	IN Core Free Shippi	FALSE	Easy Ship			
36	35 402-2784552-1492318	04-30-22	Shipped	De Merchant	Amazon.in	Standard	MEN5001	MEN5001-KR-XL	kurtas	XL	B08Y9YNNQ8	Shipper	1	INR	499	LUCKNOW	UTTAR PRADESH	226016	IN	Amazon PLOC	FALSE	Easy Ship			
Amazon Sale Report																									

## **8. Methodology :**

The methodology followed in this Amazon India Sales project includes a structured step-by-step workflow to convert raw data into meaningful business insights. The steps are:

### **1. Data Collection**

The Amazon sales dataset (Excel/CSV format) was imported from local storage for analysis.

### **2. Data Cleaning & Preprocessing**

All missing, inconsistent, or irrelevant values were identified and corrected for accuracy. New derived fields (like Week Number) were also created.

### **3. Data Exploration**

Basic descriptive analysis was performed to understand total quantity, sales amount, category distribution, and shipping patterns.

### **4. Visualization Development in Tableau**

Multiple charts and dashboards were created, including:

- Bar charts
- Line charts
- Map visualizations
- Waterfall chart
- Pareto chart
- Category-wise comparison charts

### **5. Dashboard Integration**

All sheets were combined into a single, clean dashboard layout for interpretation.

### **6. Insight Extraction**

Patterns and trends were interpreted to find meaningful business insights related to category demand, regional performance, revenue growth, and courier efficiency.

## 9. Data Preprocessing Details :

Proper preprocessing ensures data quality and reliable analysis. The preprocessing steps include:

### 1. Handling Missing Values

- Blank states, category names, or sizes were filled or filtered.
- Incorrect entries like “N/A” or “—” were replaced with valid values.

### 2. Correcting Data Types

- Dates converted into **Date Format**
- Amount and Quantity converted into **Number Format**

### 3. Creating New Fields

- **Week Number** extracted from Order Date
- **Year / Month fields** if needed
- **Status Grouping** (Delivered / Shipped / Cancelled / Returned)

### 4. Removing Duplicates

- Repeated entries were checked and removed to avoid overcounting.

### 5. Filtering Outliers

- Extremely high quantities or negative values were removed after checking.

### 6. Data Integration in Tableau

- Uploaded clean file to Tableau
- Checked field roles (Dimensions/Measures)
- Set state as Geographic role → State

## 10. Key Findings & Interpretation :

Based on all the charts and dashboards created in Tableau, the major insights are:

### 1. Category Performance

- Some product categories contribute significantly higher quantity and revenue.
- Categories like *Clothing*, *Home Decor*, or *Electronics* (as per your dataset) dominate sales.

### 2. State-wise Demand

- A few top states generate most orders, showing regional demand differences.

### 3. Shipment & Delivery Status

- Delivered orders form the majority, while Cancelled or Returned orders are low.

### 4. Weekly Trends

- Sales quantity fluctuates weekly, influenced by customer demand cycles.

### 5. Courier Performance

- Some couriers show higher delivery success, affecting customer satisfaction.

### 6. Pareto Finding

- The top 20% categories generate almost 80% of total sales amount.

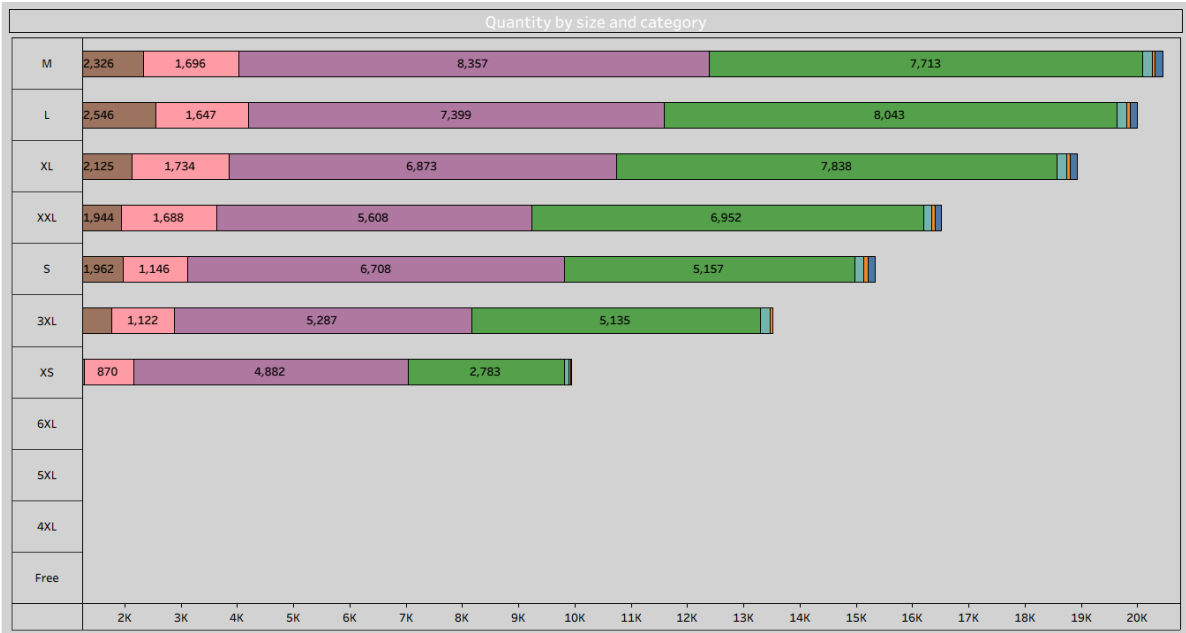
### 7. Waterfall Analysis

- State-wise waterfall shows how each region positively or negatively impacts total quantity.

11. Analysis : Here are the 10 analysis I did :

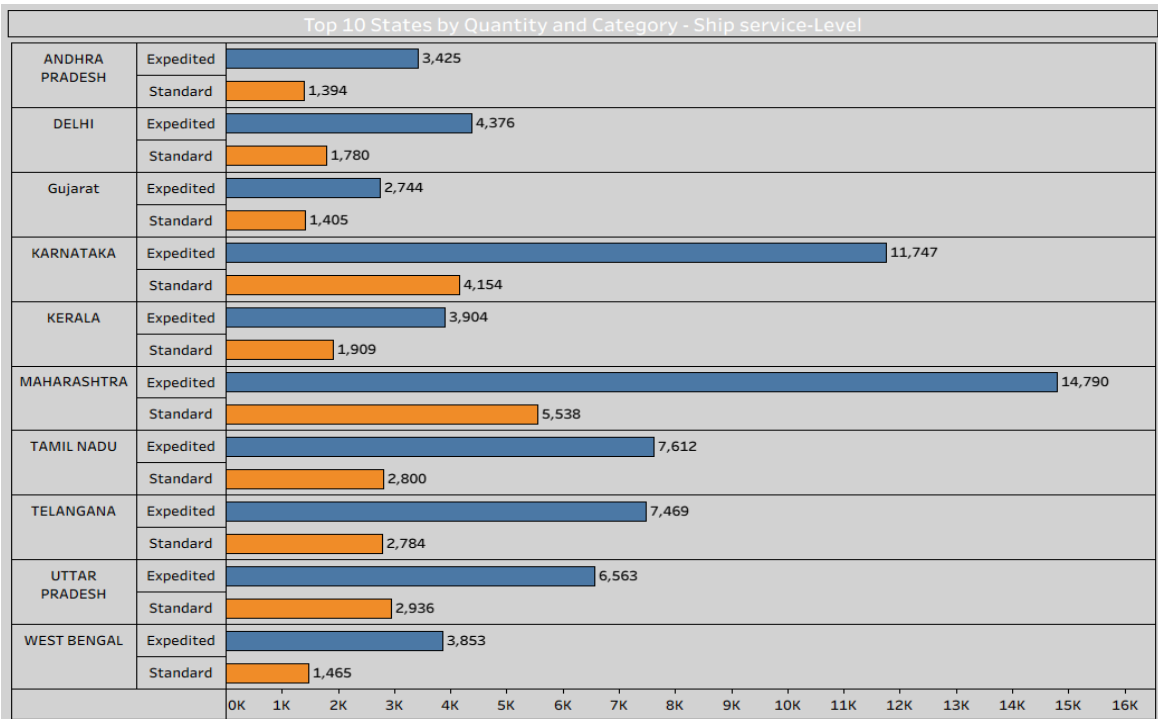
1. Quantity by Size and Category

This analysis shows how product size affects total quantity sold across categories. It helps identify which sizes are most preferred by customers.



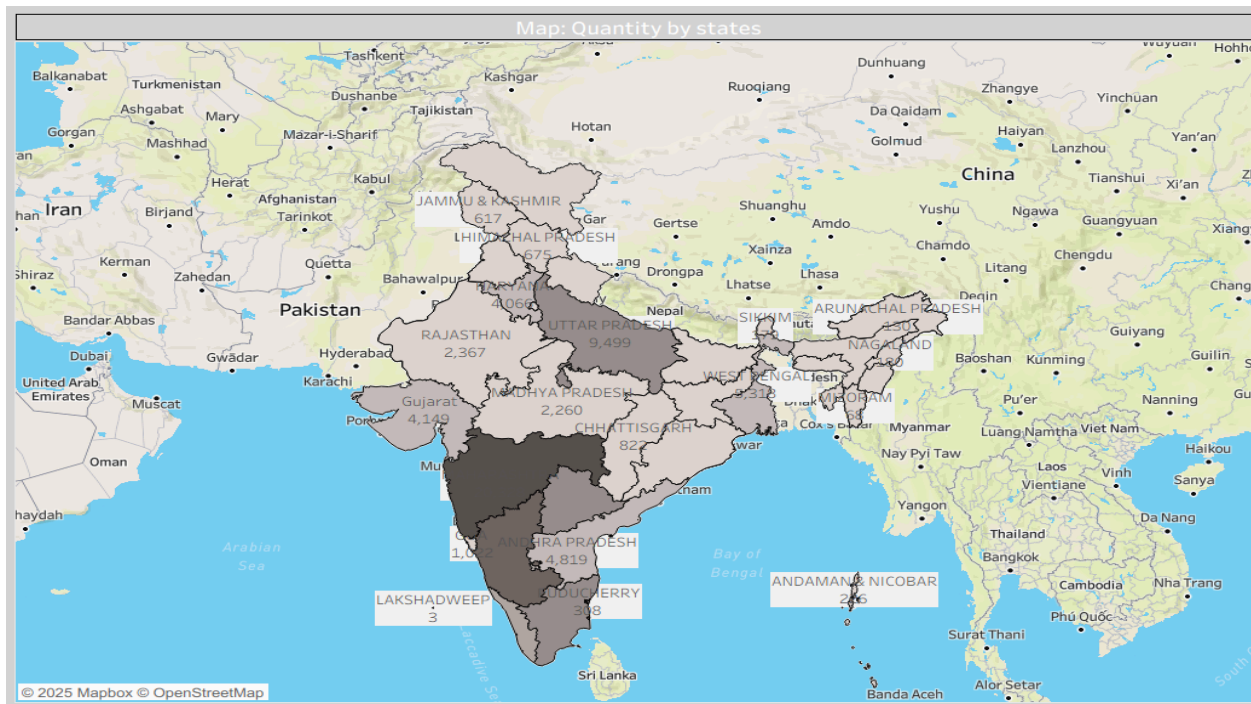
2. Top 10 States by Quantity and Category – Ship Service Level

Shows top-performing states with breakdown by category and delivery service level (Prime/Standard). Useful for regional demand forecasting.



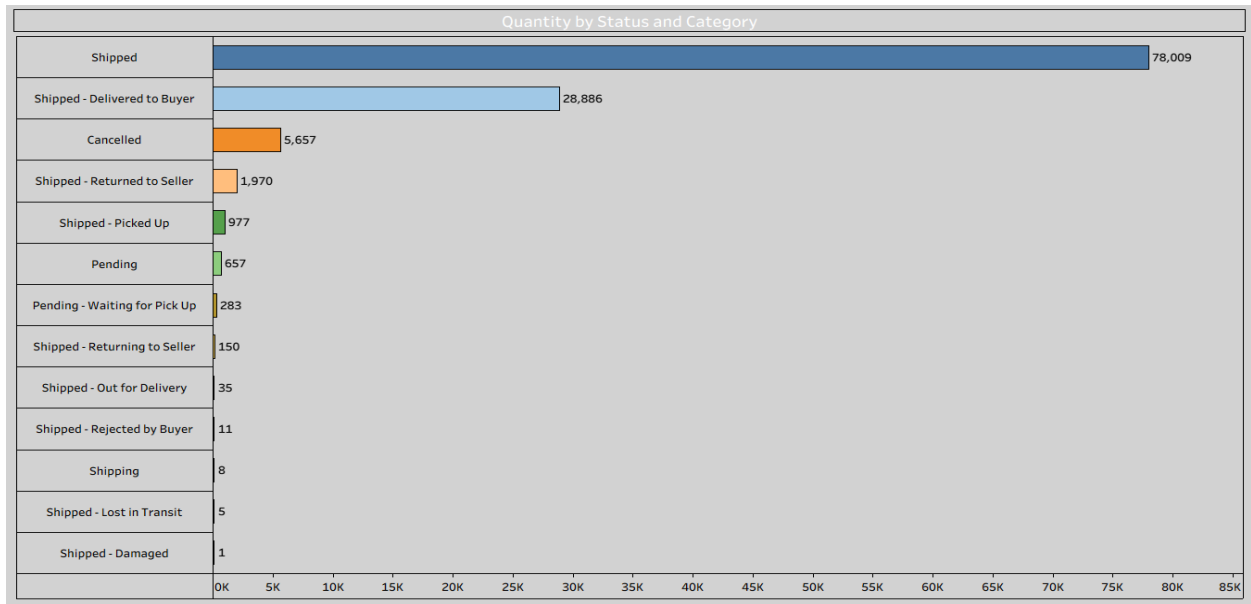
3. Map: Quantity by States

A filled map chart displaying total quantity sold across Indian states. Shows strong and weak markets.



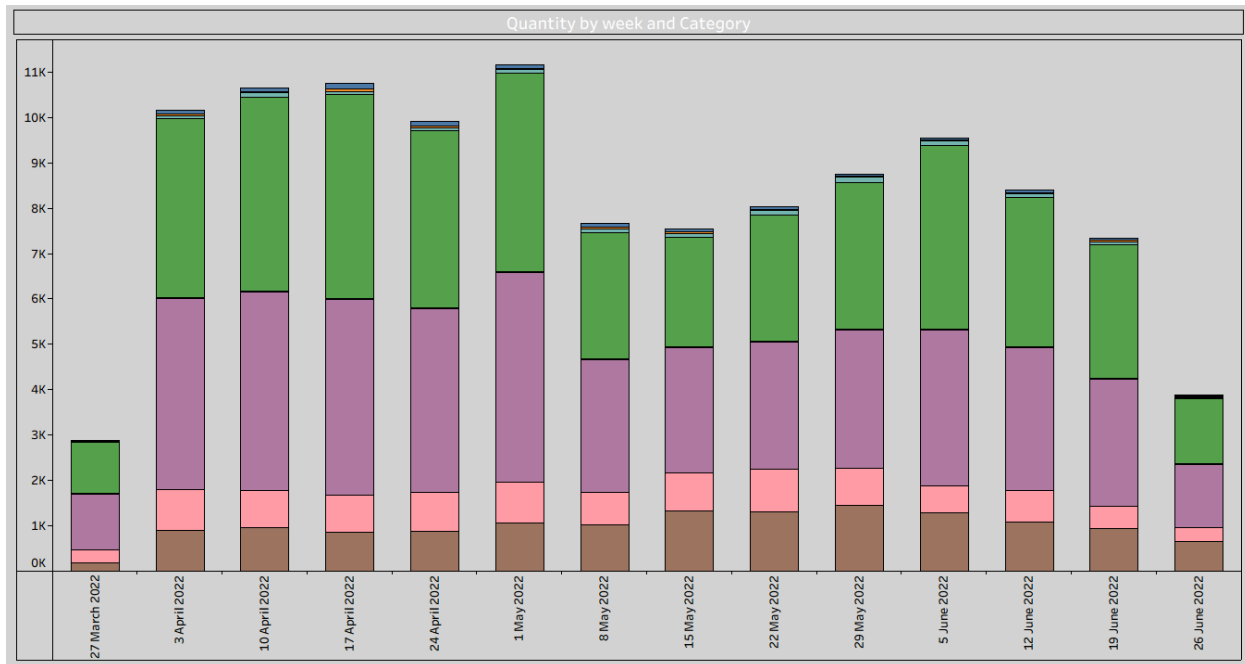
4. Quantity by Status and Category

Shows the distribution of Delivered, Cancelled, Returned, and Shipped orders per category.



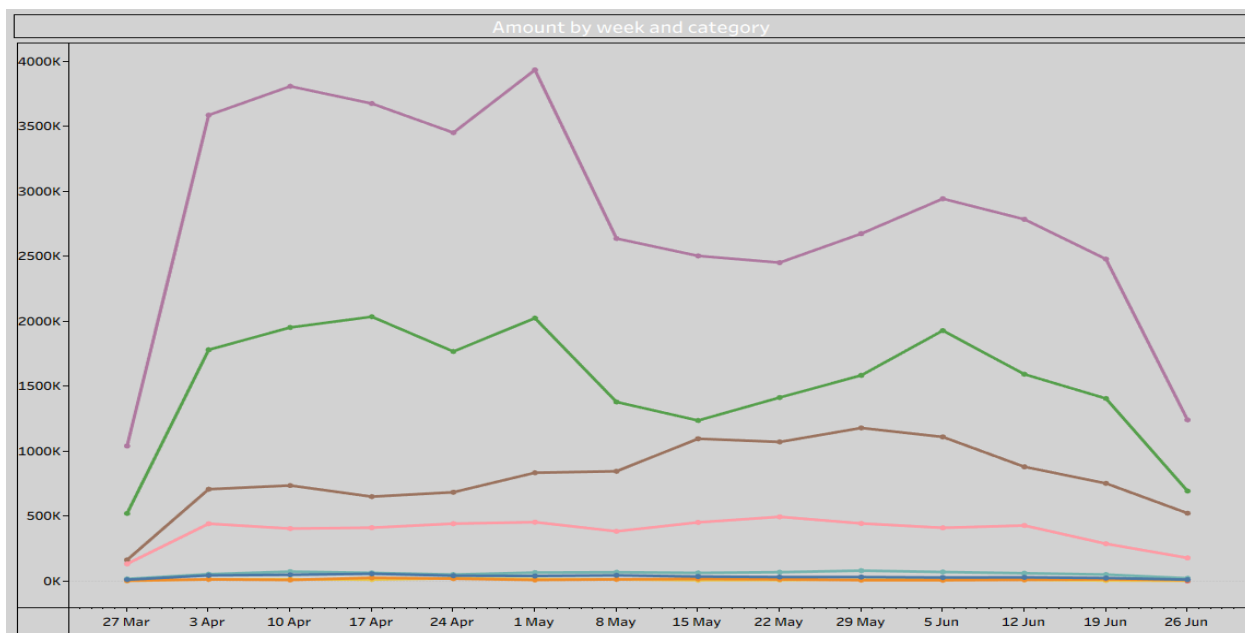
## 5. Quantity by Week and Category

Shows weekly demand patterns and category-wise movement over time.



## 6. Amount by Week and Category

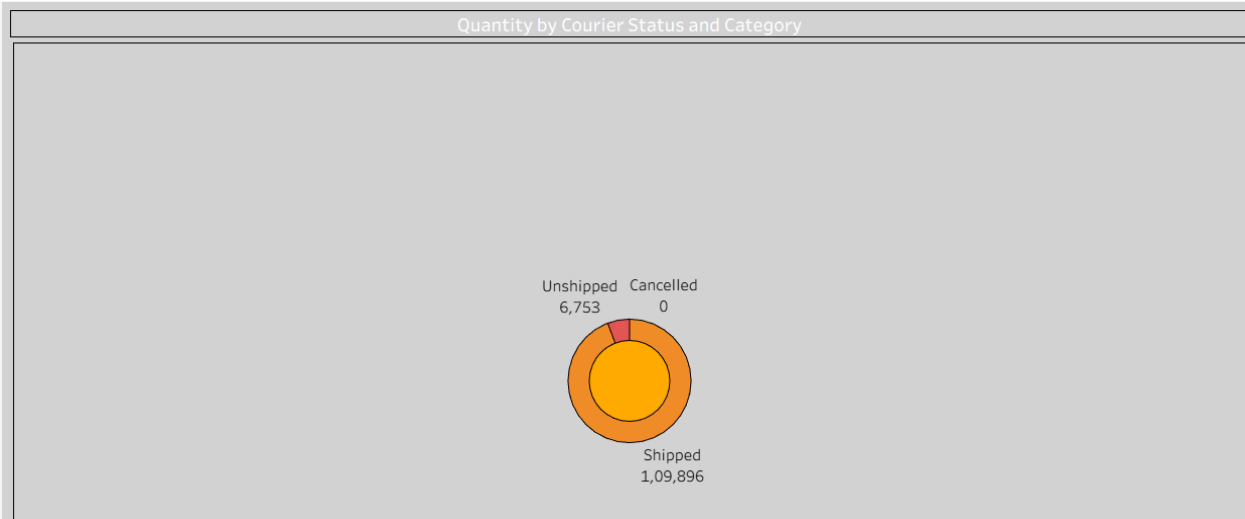
Indicates weekly revenue trends for each category.





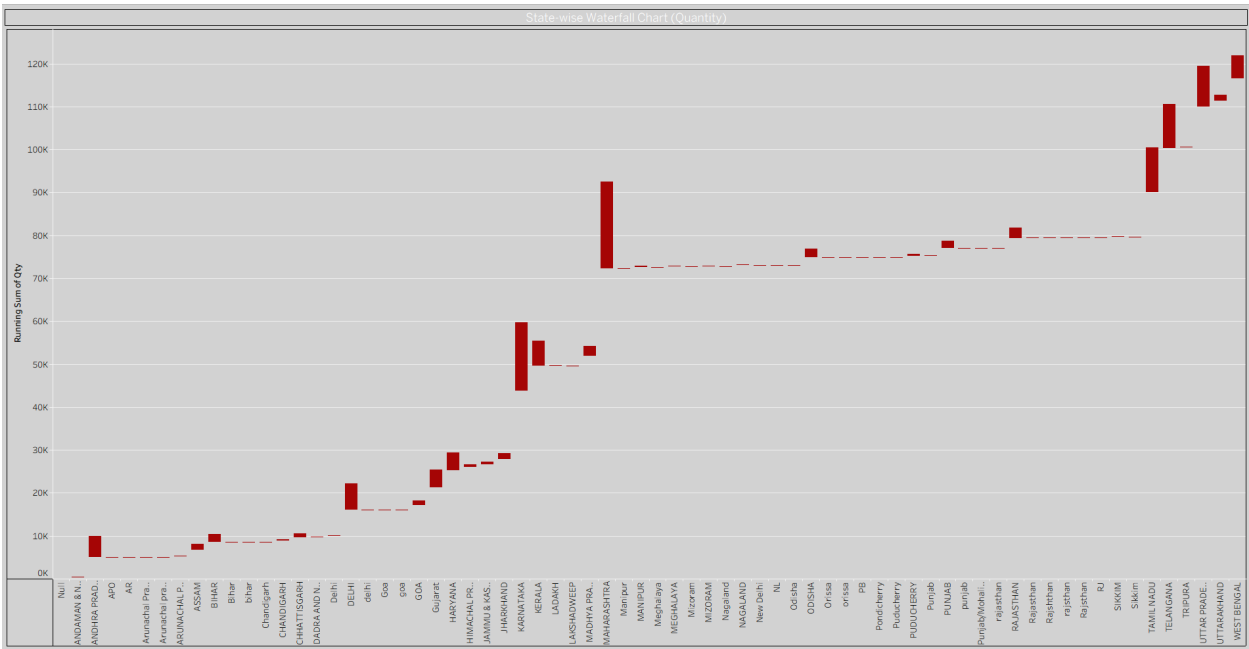
## 7. Quantity by Courier Status and Category

Helps compare courier efficiency and delivery success rates.



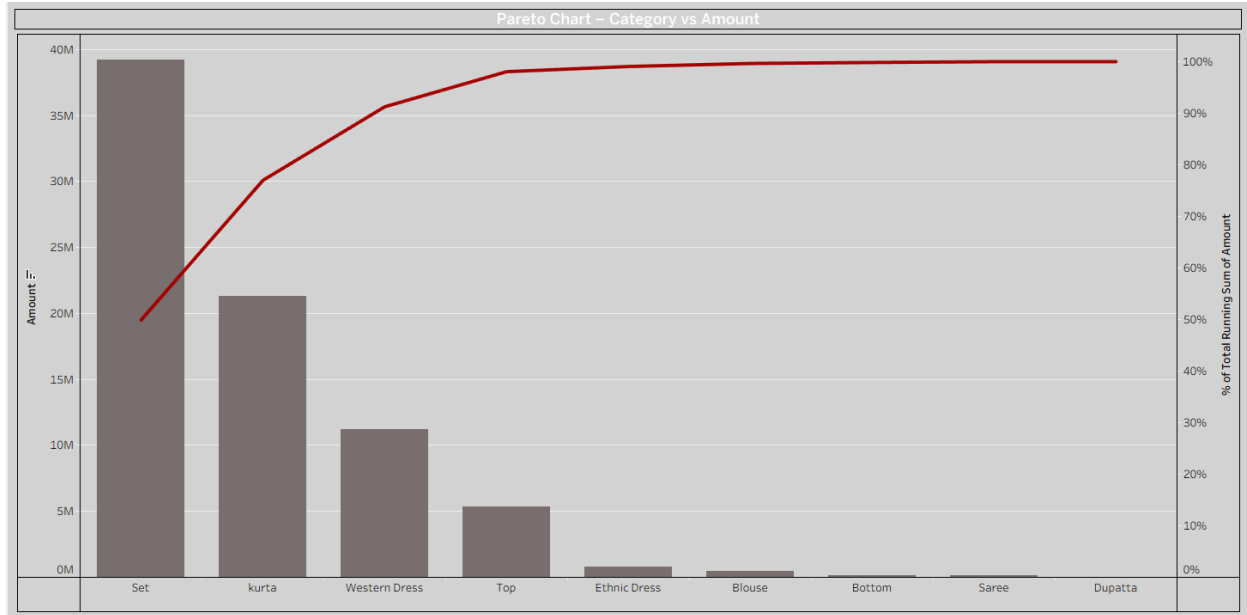
## 8. State-wise Waterfall Chart (Quantity)

This shows the incremental contribution of each state to the total quantity. Identifies positive and negative contributors.



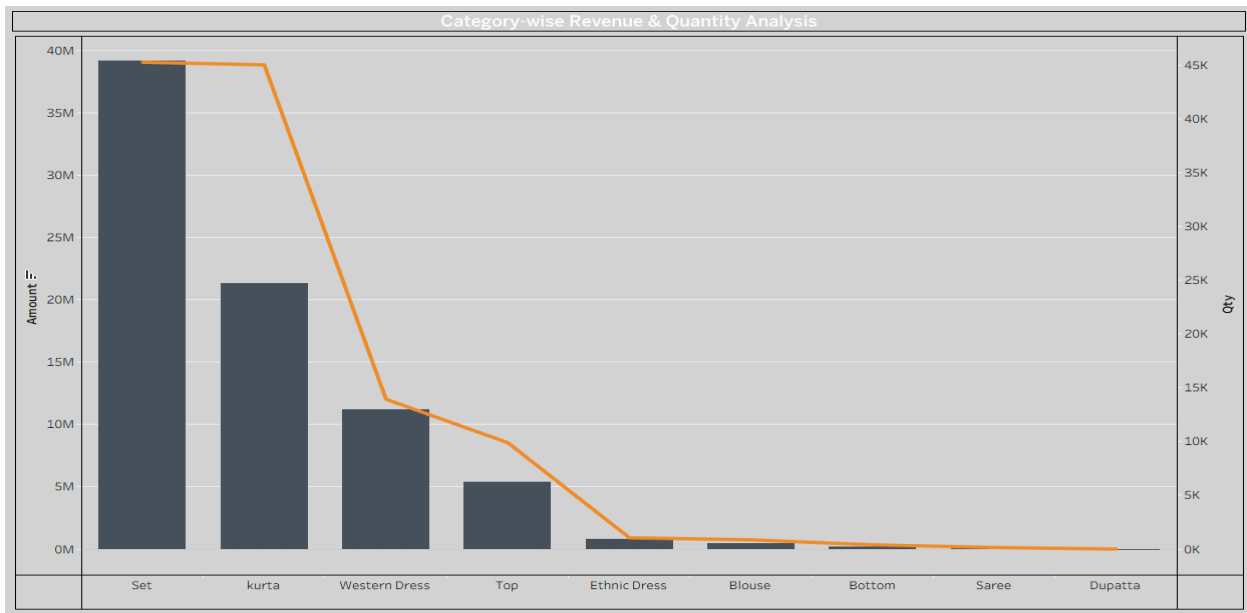
## 9. Pareto Chart – Category vs Amount

Shows the categories contributing the maximum revenue and identifies the 80/20 revenue pattern.



## 10. Category-wise Revenue & Quantity Analysis

Provides a combined view showing which category contributes maximum in terms of both revenue and quantity.

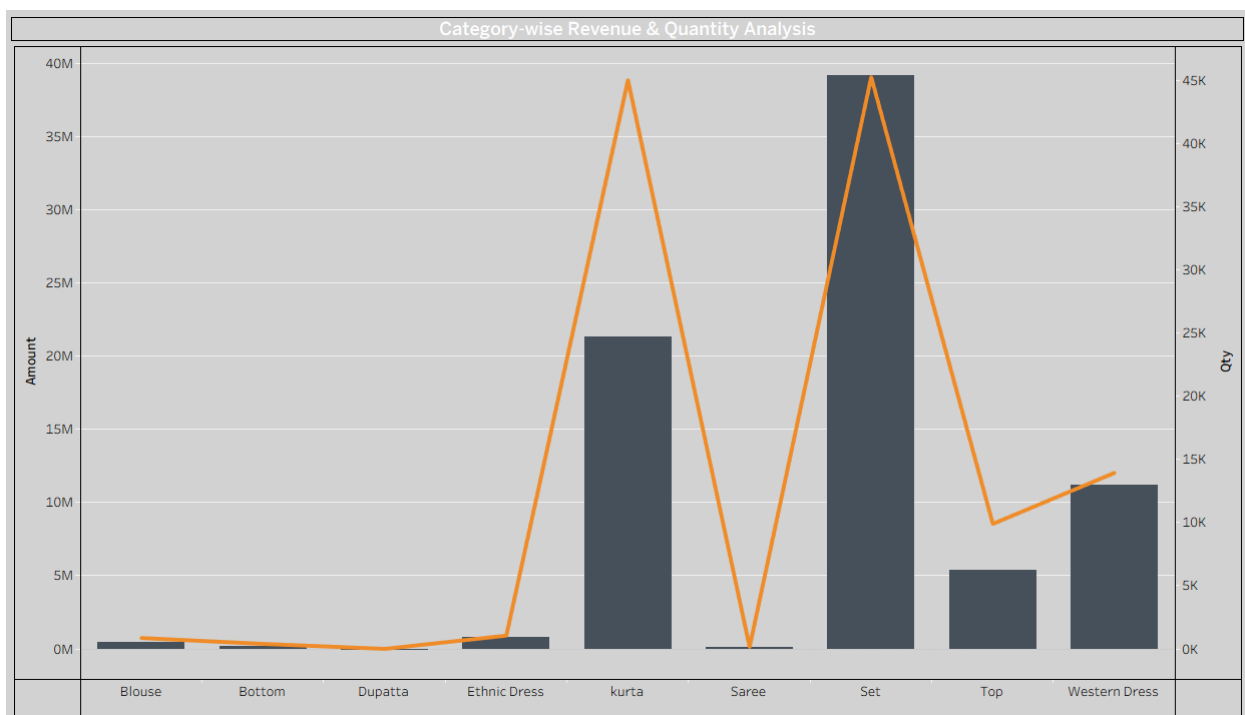


## 12. Business Applications :

The insights generated from this Amazon Sales Analysis can be used directly in real business situations. Every chart and trend highlights an area where decisions can be improved. For example, category-wise performance helps sellers understand which products are doing well and which need better pricing or promotions. Similarly, identifying the top-performing states allows companies to plan their regional marketing campaigns more effectively.

The weekly trend analysis is especially helpful for inventory teams because it shows the exact weeks where demand increases or drops. This can reduce stockouts and avoid over-stocking. The courier and shipment-related insights also have practical use, as they reveal which delivery partners are performing well and which ones cause delays or returns. Companies can use this information to negotiate better service or shift to more reliable couriers.

Overall, this project provides a structured way for businesses to move from raw data to strategic decisions. Whether it is planning discounts, allocating stock, choosing couriers, or improving customer experience, the analysis supports every major operational area with clear visuals and facts.



## 13. Financial Helpfulness & Business Impact :

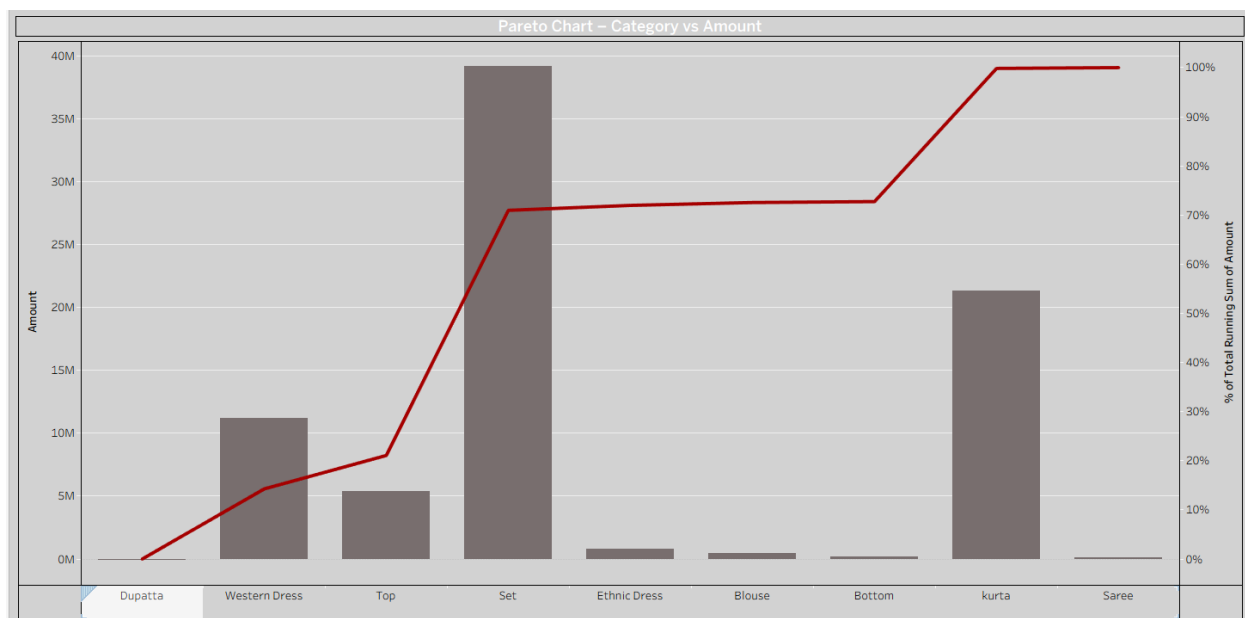
The financial impact of this analysis is quite significant because it highlights where the company is earning the most revenue and where potential losses lie. For example, the Pareto chart clearly shows that only a few categories generate most of the revenue. This helps businesses understand where to invest more money, increase promotions, or launch new variations of products.

State-wise sales distribution also reveals which states give the highest financial return. By focusing more marketing efforts on these states, companies can increase their sales without increasing their overall budget too much. Similarly, understanding poorly performing states helps businesses avoid unnecessary spending.

Shipment and courier performance also affect financial outcomes. Delays and cancellations indirectly increase cost because they require extra customer support, re-shipments, or refunds. By identifying unreliable courier services early, businesses can reduce unnecessary expenses.

In summary, the analysis supports financial planning in three main ways:

1. Increasing revenue by focusing on high-performing categories and states
2. Reducing losses by identifying operational weaknesses
3. Improving delivery efficiency to enhance customer satisfaction and reduce return costs



## 14. Conclusion :

This project provided a complete overview of Amazon India's sales data using Tableau. By analyzing the dataset from multiple angles—such as category, week, state, courier performance, and shipping status—it became clear how data visualization can simplify decision-making.

The study successfully highlighted which categories contribute the most to total quantity and revenue, which states show strong customer demand, and how delivery performance impacts customer experience. Weekly trend charts revealed important patterns that businesses can use for forecasting and planning stock. Advanced visualizations like the Waterfall and Pareto charts added deeper clarity to how different factors influence overall performance.

Overall, this analysis shows the power of data-driven insights in improving business operations. Whether it is sales strategy, inventory management, logistics, or marketing planning, Tableau has helped convert raw sales numbers into clear, actionable findings. This approach can be further expanded in future projects by adding more customer-related data, seasonality trends, or predictive analytics.

