



# Amazon E-Commerce Sales

Group - 10



# Agenda

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- Company Overview
- Bus Matrix & Star Schema
- Conformed Dimensions
- Transformation Rules
- Aggregate Tables
- Cube
- Visualizations/Dashboards
- Conclusion



# What is Amazon E-Commerce

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- Founded in 1994 by Jeff Bezos
- Originated as an online bookstore and evolved into a global technology and e-commerce company
- Offers a wide range of goods and services
- E-commerce platform allows third-party sellers to list and sell products alongside Amazon's own offerings
- Diverse product categories, including books, electronics, clothing, and household goods
- User-friendly online marketplace for easy product search, reviews, and purchases

# Key Features

- **Product Listings:**
  - Sellers can create detailed product listings with descriptions, images, and pricing.
- **Customer Reviews:**
  - Customers can leave reviews and ratings, offering valuable feedback for potential buyers.
- **Amazon Prime:**
  - Subscription service providing members with benefits like free and fast shipping, access to streaming services, and more.
- **Fulfillment by Amazon (FBA):**
  - Sellers can use Amazon's fulfillment services, streamlining storage, packing, and shipping logistics.
- **Amazon Marketplace:**
  - Third-party sellers can list and sell products, contributing to the vast variety on Amazon.
- **Digital Products:**
  - Amazon offers digital goods like e-books, music, and streaming services through platforms such as Kindle, Amazon Music, and Amazon Prime Video.

# E-Commerce

## Why DW and BI?



### Data Centralization:

**DW:** Gathers data from various sources for a unified view.



### Historical Analysis:

**DW:** Stores historical data for trend analysis.



### Real-time Analytics:

**BI:** Enables real-time analysis for swift decision-making.



### Customer Segmentation:







































**BI:** Segments customers for personalized strategies.




























### Inventory Management:

**BI:** Optimizes stock levels and forecasts demand.



























# Amazon Business Process

		Date & Time	Product	Part	Media	Career	Vendor	Status	Service
Procurement									
Manufacturing									
sales									
Inventory									
HR									
Pay roll									
Marketing									

## Opportunity Matrix-- Sales

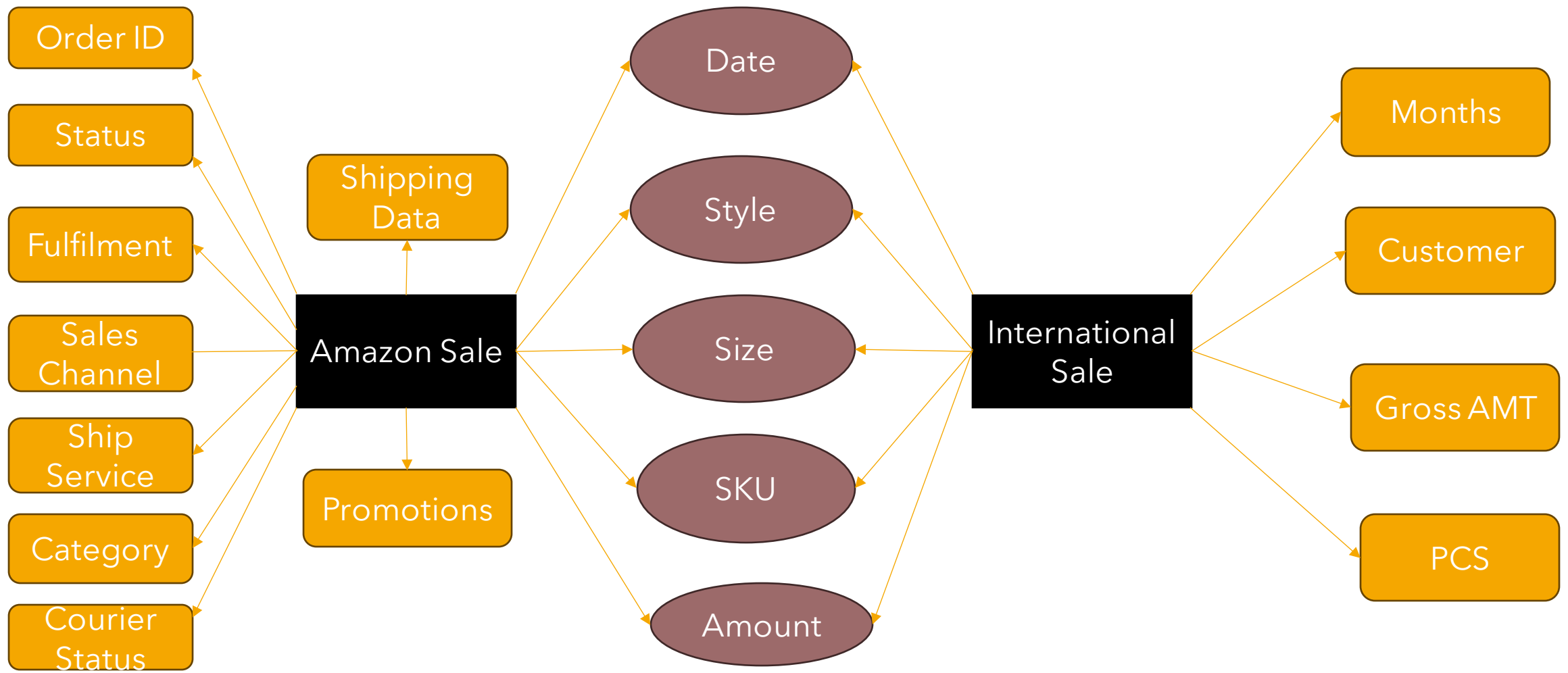
Business Process	Customer Service	Financial	Operations	Human resource	Logistics	Strategy management	
Online Sales Transaction							
In store Sales Transaction							
Vendor Sales Transaction							
Order Processing							
Delivery Process							

# E-commerce High Level Bus Matrix

	Date	Material	Location	Owner	Product	Service Policy	Account status	Order	Customer
Online sales Transaction									
Order Processing									
Delivery Processing									
Return Policy									



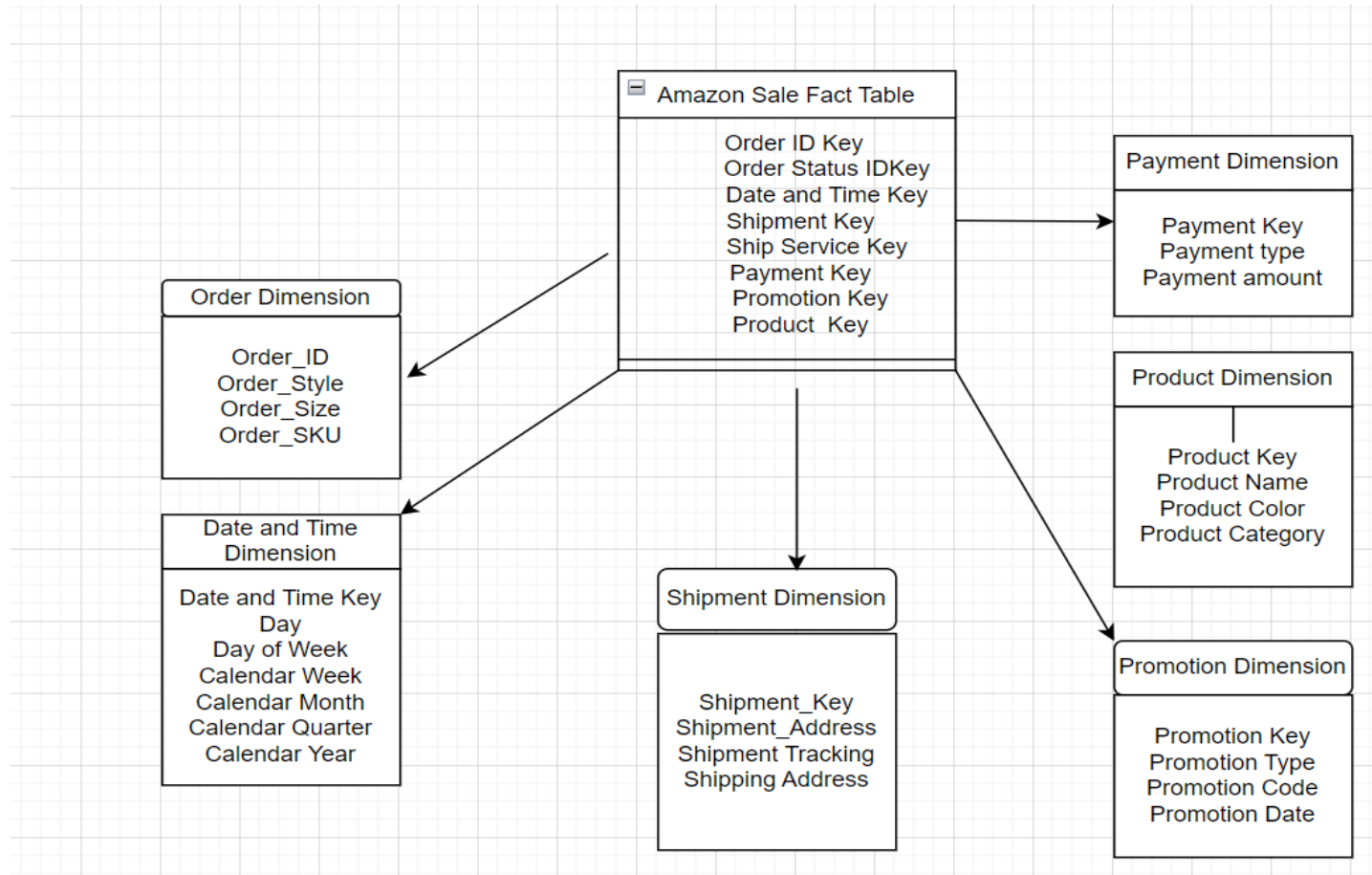
Ecommerce Business Process Fact tables				Date	Product	Location	Owner	Service policy
		granularity	fact					
online sales transaction	sales transaction	Per line item	purchase date key purchase amount key purchase unit price key transaction number	x	x		x	x
	click stream	Per click	referral key session key time key event key page key	x	x			x
	Vendor information	Per vendor item	vender number key vendor product amount key ...	x	x	x	x	x
Order processing	warehouse picking	Per warehouse receipt	ship date key requested date key product key vendor key	x	x		x	x
	billing and invoicing	Per order	date key order number quantity key product key ...	x	x		x	
	shipping notice	Per line item	shipping date key shipping cost key tracking number delivery company key ....	x	x	x	x	x
Delivery process	delivery operation	Per line item	tracking number shipping date delivery cost key ....	x	x	x		x
	store return process	Per line item	store number key item number key return date key ....	x	x	x		x
Return policy								



Amazon Sales Logical Fact Table Diagram - Sales Transaction

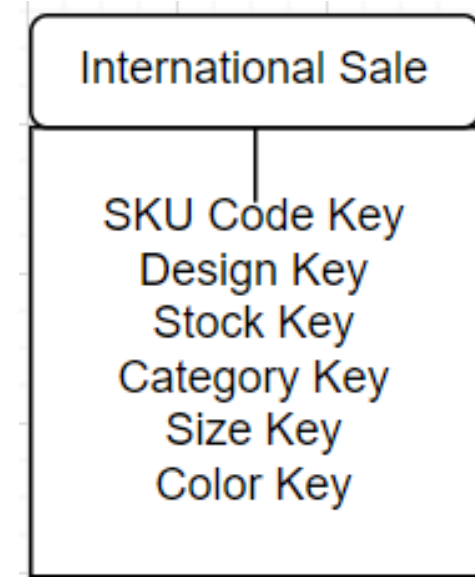
# Star Schema Of Amazon Sale Fact Tables

## Amazon Sale Fact



# Detailed Fact Table – Sale and International Sale.

- There are two fact tables for this . One is Amazon sale fact table, and the other is international sale fact table.
- In each fact table I have foreign keys as composite primary keys which have the key information of the dimensions with respect to each fact table.
- Each row in the sales detail represents the sale metrics of a product. This grain gives us the information of sales happened in certain amount of time.



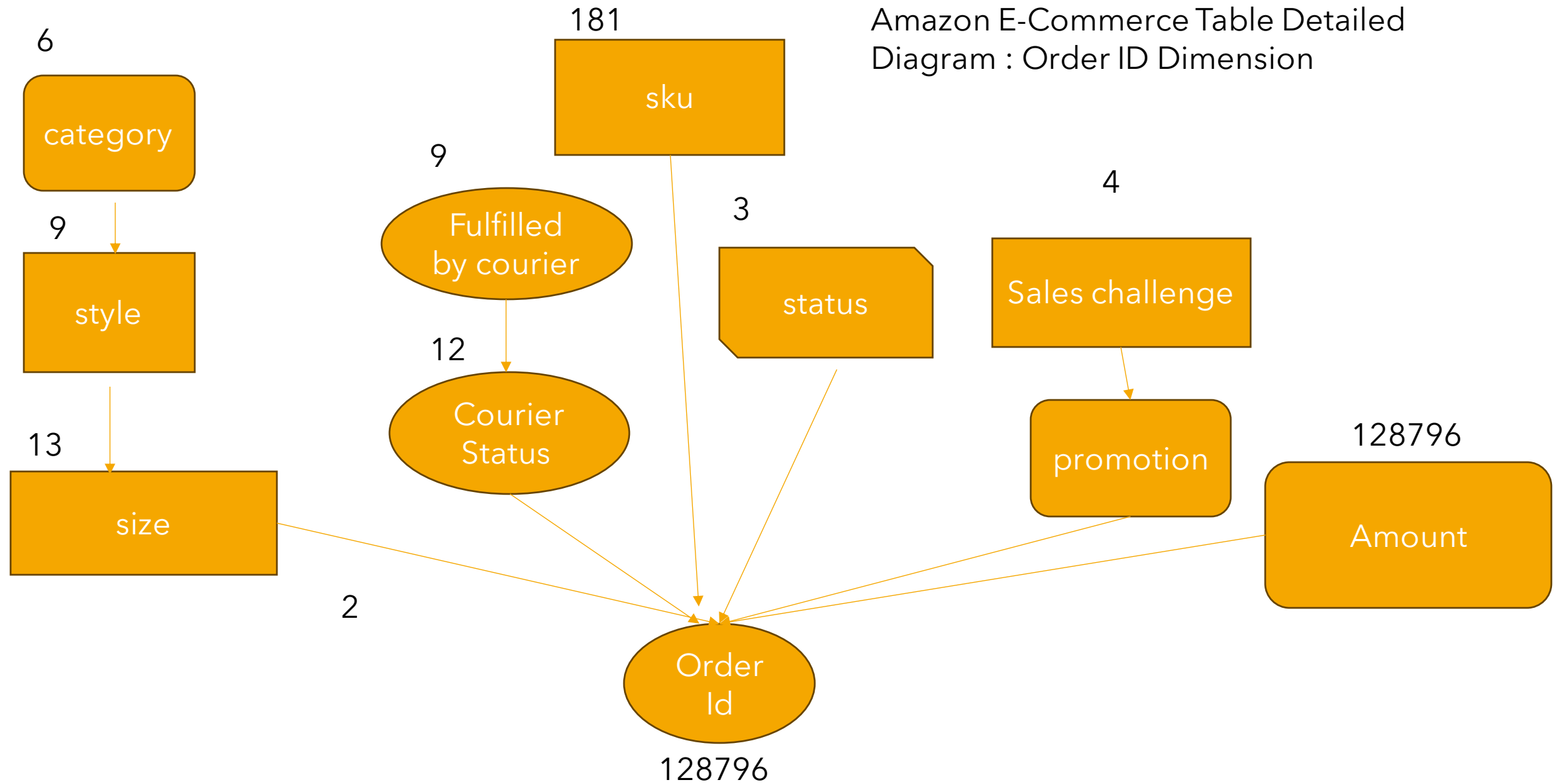
Amazon Sale Fact Table

Order ID Key
Order Status IDKey
Date and Time Key
Shipment Key
Ship Service Key
Payment Key
Promotion Key
Product Key

Attribute Name	Attribute Description	Cardinality	Slowly Changing Dimension Values	Sample Values
Order ID	Order Id uniquely identifies each order which has been sold by amazon	1,28,796	Not Updatable	407-9547469-3152358, 402-9551604-7544318
Status	Status gives us the order confirmation and it's status until delivered	3	Not Updatable	Cancelled. Shipped and Confirmed
Style	It gives unique id about the product's style which has been sold	9	Type 2	SET389 , JNE3781
Category	It gives the description of product style	6	Not Updatable	Kurta, Shirt, Western and Set.
Size	It gives the full descriptive name of product's size	13	Not Updatable	S, XL, L, XXL
Promotion	It give the description of the promotion at the time of sale	4	Not Updatable	AAT-WNKTBO3K27EJC, QX3UCCJESKPA2
SKU	It is a number that retailers assign to products to keep track of stock levels internally	181	Type 1	SET389-KR-NP-S, JNE3781-KR-XXXL
Sales Channel	It gives the description of portal through which sale is made.	2	Not Updatable	Amazon.in
Fulfilled by	It gives the description of vendor which made the delivery	9	Type 2	Easy Ship
Courier Status	It gives the description of status where the product is.	12	Not Updatable	Shipped, D8
Amount	It gives the amount of the product	1,28,796	Not Updatable	647.62, 406,329



## Amazon E-Commerce Table Detailed Diagram : Order ID Dimension



# Amazon E-commerce – Conformed Dimensions

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- Any well constructed data warehouse should aim for standardized, conforming dimensions.
- Below are the conformed dimensions:
  1. Date
  2. Style
  3. Size
  4. SKU
  5. Amount

# Transformation Rules

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## Data Cleaning:

- **Rule:** Remove duplicate records, correct data errors, and handle missing values.
- **Purpose:** Ensures data accuracy and consistency.

## Normalization:

- **Rule:** Standardize units, formats, and naming conventions.
- **Purpose:** Improves data uniformity for better analysis.

## Data Aggregation:

- **Rule:** Summarize and aggregate data for reporting purposes.
- **Purpose:** Provides insights into overall trends and performance.

## Data Enrichment:

- **Rule:** Enhance existing data with additional information from external sources.
- **Purpose:** Augments data to improve its completeness and context.

## Data Filtering:

- **Rule:** Exclude or include specific data based on predefined criteria.
- **Purpose:** Focuses on relevant data for analysis or reporting.

## Data Integration:

- **Rule:** Combine data from various sources into a unified dataset.
- **Purpose:** Creates a comprehensive view for analysis and decision-making.

# Transformation Rules

## (Con't..)

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### Derived Attribute Generation:

- **Rule:** Create new attributes or features derived from existing data.
- **Purpose:** Adds context or creates calculated fields for analysis.

### Data Deduplication:

- **Rule:** Identify and remove duplicate records within the dataset.
- **Purpose:** Improves data quality and avoids redundancy.

### Data Masking/Anonymization:

- **Rule:** Protect sensitive information by replacing or encrypting certain data.
- **Purpose:** Ensures data privacy and compliance with regulations.

### Data Transformation for Analytics:

- **Rule:** Prepare data specifically for analytics tools or models.
- **Purpose:** Optimizes data for meaningful insights and predictions.

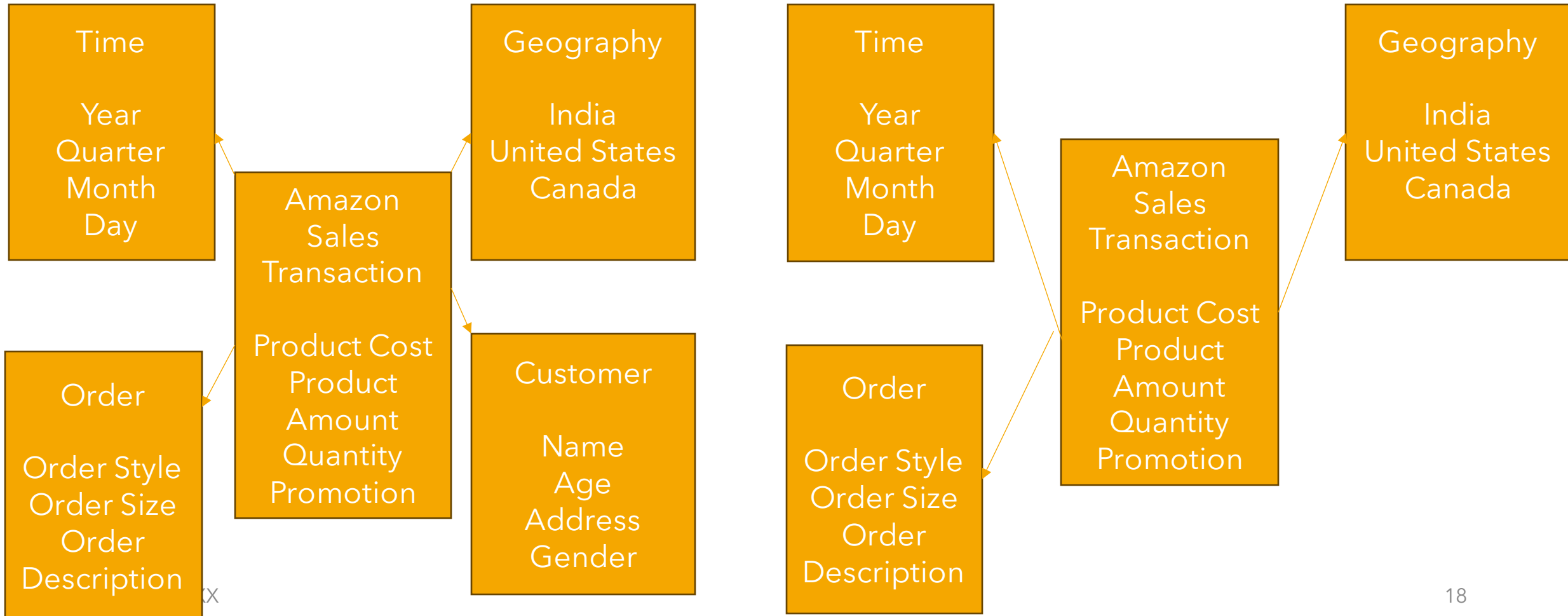
### Dynamic Pricing Algorithms:

- **Rule:** Implement algorithms to adjust product prices dynamically based on various factors like demand, competitor prices, and inventory levels.
- **Purpose:** Maximizes revenue and maintains competitiveness.

### Recommendation Engine Algorithms:

- **Rule:** Utilize algorithms to provide personalized product recommendations to users.
- **Purpose:** Enhances user experience and drives sales.

# Amazon E-Commerce Aggregate Tables





# E-Commerce Aggregate Table

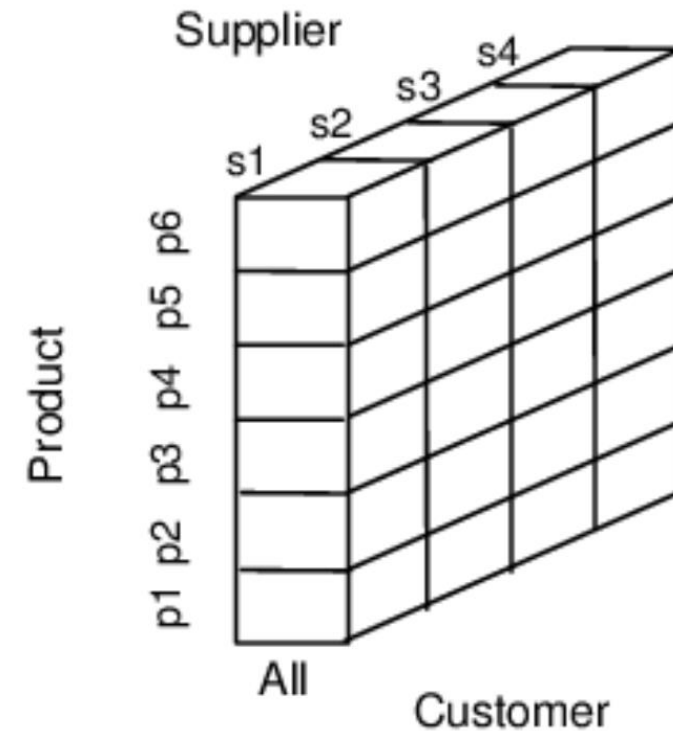
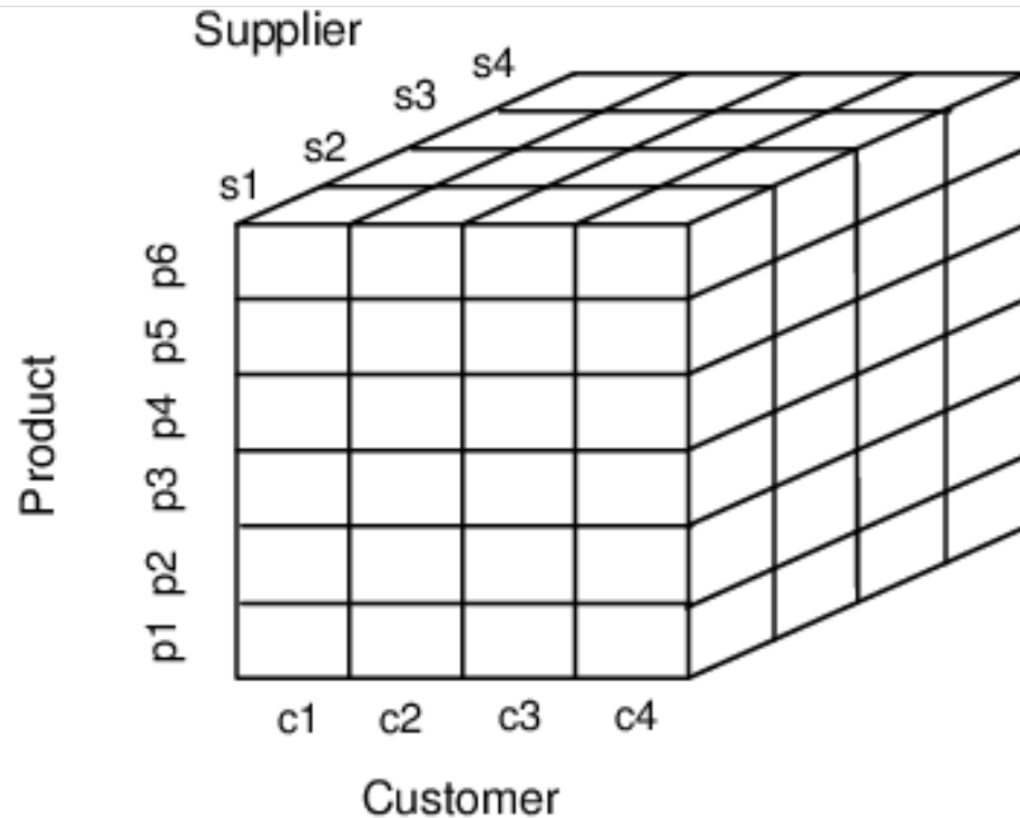
Online Sales Transaction	Order			Geography		Time			
	Order style	Order size	Order Description	Worldwide		Year1		Year2	
				India	International	Quarter1	Quarter2	Quarter1	Quarter2
						Month1	Month2	Month1	Month2
Product Cost									
Product									
Amount									
Quantity									
Promotion									

# E-Commerce Aggregate Table (cont..)

Online Sales Transaction	Order			Geography		Time			
	Order style	Order size	Order Description	Worldwide		Year1		Year2	
				India	International	Month1	Month2	Month1	Month2
Product Cost									
Product									
Amount									
Quantity									
Promotion									

Aggregate table by Order By Month

# E-Commerce Cube



# ORGANISATIONAL AND BUSINESS CONTEXT

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**Global E-commerce Leader:** Amazon is recognized worldwide for its extensive online retail operations.

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**Diverse Business Segments:** The company operates across multiple segments, including: Online Retailing, Cloud Computing, Digital Streaming, Artificial Intelligence.

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**Wide Range of Functionalities:** Amazon's operations necessitate a data architecture that supports diverse functions such as: Sales Management, Warehouse Management, Financial Reporting, International Operations

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**Data-Driven Decision Making:** The vastness and variety of its business require robust data management for effective decision-making.

# USER AND TASK ANALYSIS

- **i. Types of Users**

- **Power Users:** Data scientists and business analysts who require in-depth access to data for complex analysis. For example, a business analyst examining the "International Sale Report" for market trends.
- **Casual Users:** Employees who need occasional access to specific data sets, like a marketing team member reviewing the "Amazon Sale Report" for recent sales figures.
- **Managers and Executives:** Require high-level summaries and key insights. They might use the "P&L March 2021" report for financial overviews.



# USER AND TASK ANALYSIS (cont'd)

**Operational Workers:** Staff involved in day-to-day operations, such as warehouse personnel utilizing the "Cloud Warehouse Comparison Chart" for inventory management.

**Knowledge Workers:** Employees like customer service reps who might use the "Sale Report" to address customer inquiries.

# USER AND TASK ANALYSIS (cont'd)

## ii. Data Access and Usage

**Power and Casual Users:** Access detailed datasets for specific analyses; usage ranges from generating detailed reports to conducting ad-hoc queries.

**Managers and Executives:** Prefer dashboards and visual summaries; access data for strategic decision-making.

**Operational Workers and Knowledge Workers:** Require real-time data access for operational efficiency and customer service.

# USER AND TASK ANALYSIS (cont'd)

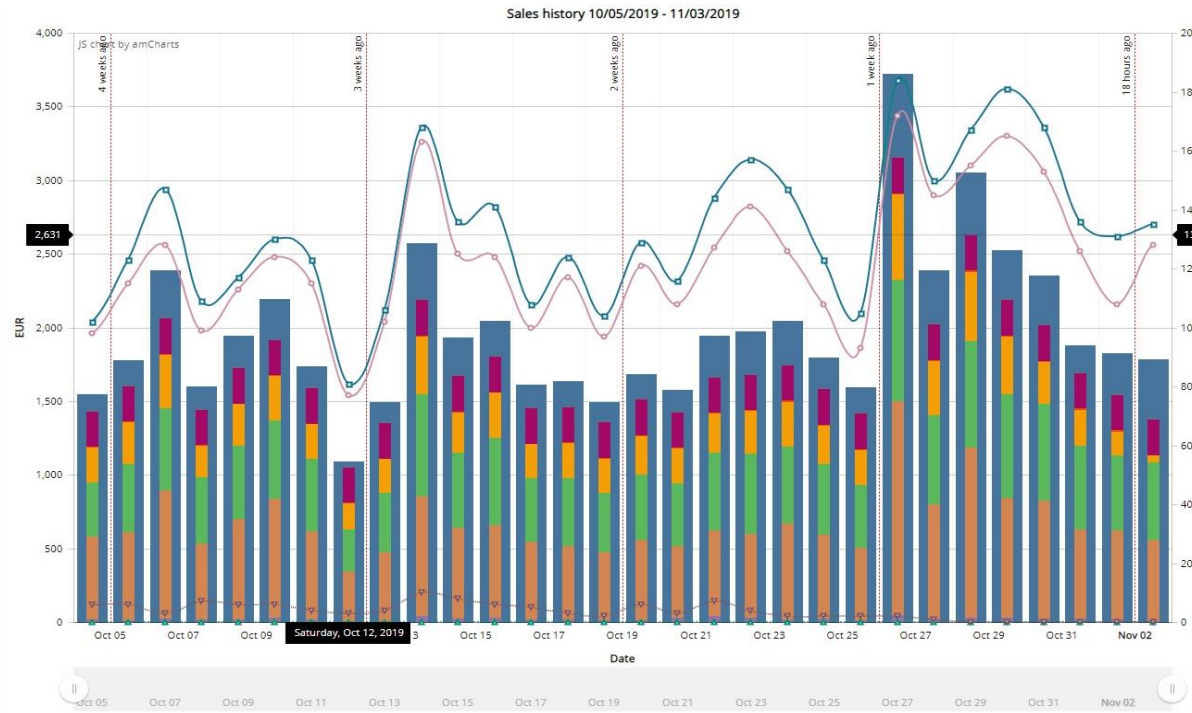
## iii. Categories of Analyses

**Exploratory Analysis:** Used primarily by data scientists and business analysts to uncover patterns and insights. For instance, exploring the "May-2022.csv" for emerging market trends.

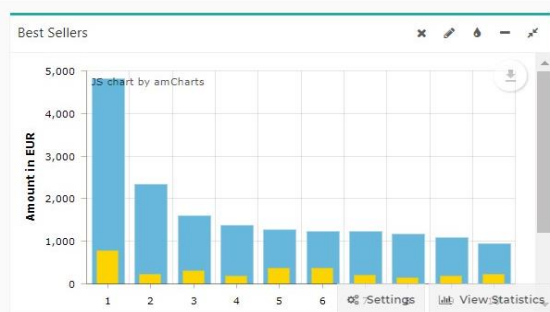
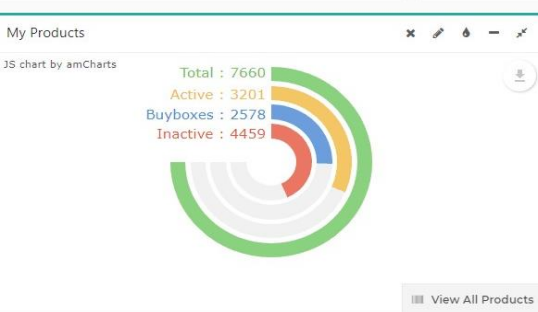
**Explanatory Analysis:** Managers and executives often utilize this to understand the why behind certain business outcomes, like analyzing "P&L March 2021" for financial performance insights.

**Hybrid Analysis:** Combines elements of both exploratory and explanatory analyses, suitable for in-depth business reviews and strategic planning.

Revenue	€59,203.39
Promo Sales	€0.00
Organic Sales	€59,203.39
Costs	€-1,056.43
Promotions	€-12.58
Cost of Goods	€-338.09
Amazon Fees	€-284.35
Taxes	€-176.27
PPC Costs	€-5.14
Operating Expenses	€-240.00
Shipping Cost	€0.00
Miscellaneous Cost	€0.00
Profit	€36.18
Units	
Orders	77
Units	81
Promo	0
Refunds	3
Note	
Notes	



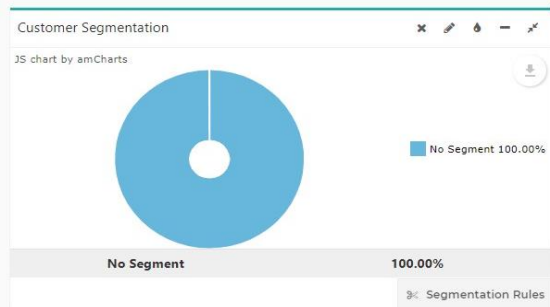
# AMAZON ECOMMERCE BI PORTAL LANDSCAPE- POWER USERS



My Accounts

Products: 22,037 Orders: 7,310 (for 2 months)

CA	Seller Id: A37FQQFUXAMQF39 MWS Auth Token: amzn.mws.62a0b04-d8e-6b03-a9c-db859d7a11	2,163 65
Orders	25 minutes ago	
Products	8 hours ago	
Finances	2 hours ago	
Inventory	26 minutes ago	
IT	Seller Id: AAEUQXYZ7BBC6 MWS Auth Token: amzn.mws.42af0c6a-4fc4-6158-a01b-c7aa0892e317	3,044 43
Orders	25 minutes ago	View Amazon Acco



Promotions

Promo Id	Units	Revenue	Promo Sp
DE Core Free Shipping 2018/04/24 20-00-00	899	€13,199.06	-€717.44
Amazon PLCC Free-Financing Universal Merchant	11	€211.51	-€50.00
Amazon PLCC Free-Financing Universal Merchant	4	€0.00	€0.00
AJRQXUJ5EDA55 1560515149119	1	€0.00	€0.00

Edit Promo

Cancelled Orders

Account Valuation

Watchlist Summary

# AMAZON ECOMMERCE- KNOWLEDGE WORKERS

## (CUSTOMER LEVEL OVERVIEW)



Rate of Returning Customers

44.29%

Average Calls per Customer

2.54

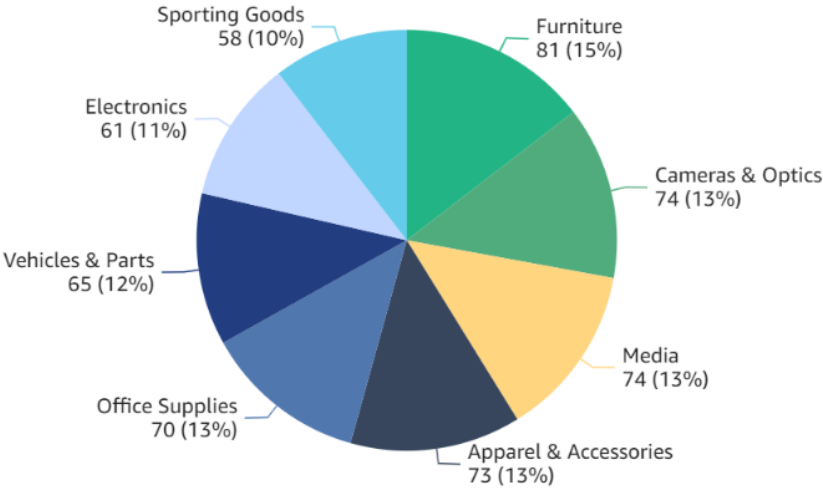
Total Number of Customers

998

Customer Satisfaction Score

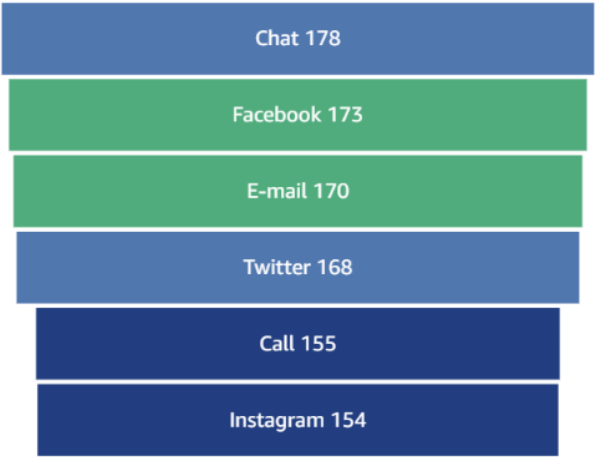
2.94

New Users across Sales Categories



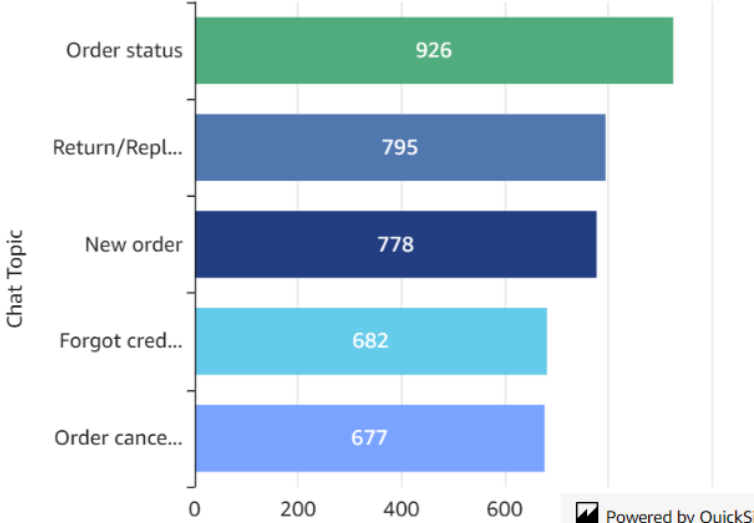
Group By: Sales category

Count of Customers across Platforms



Group By: Request Serving Platform

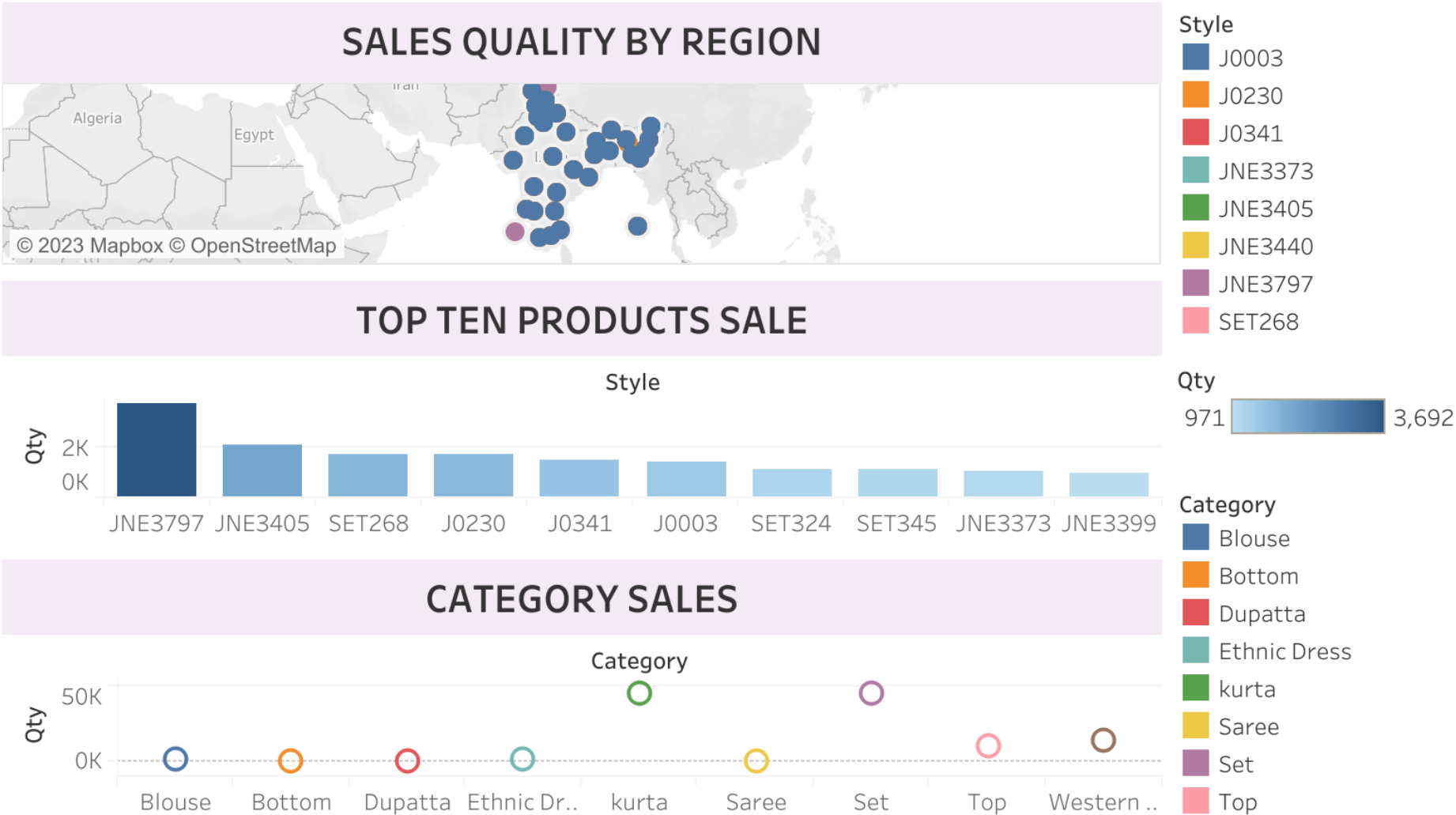
Call Duration across Conversation Topics



Powered by QuickS

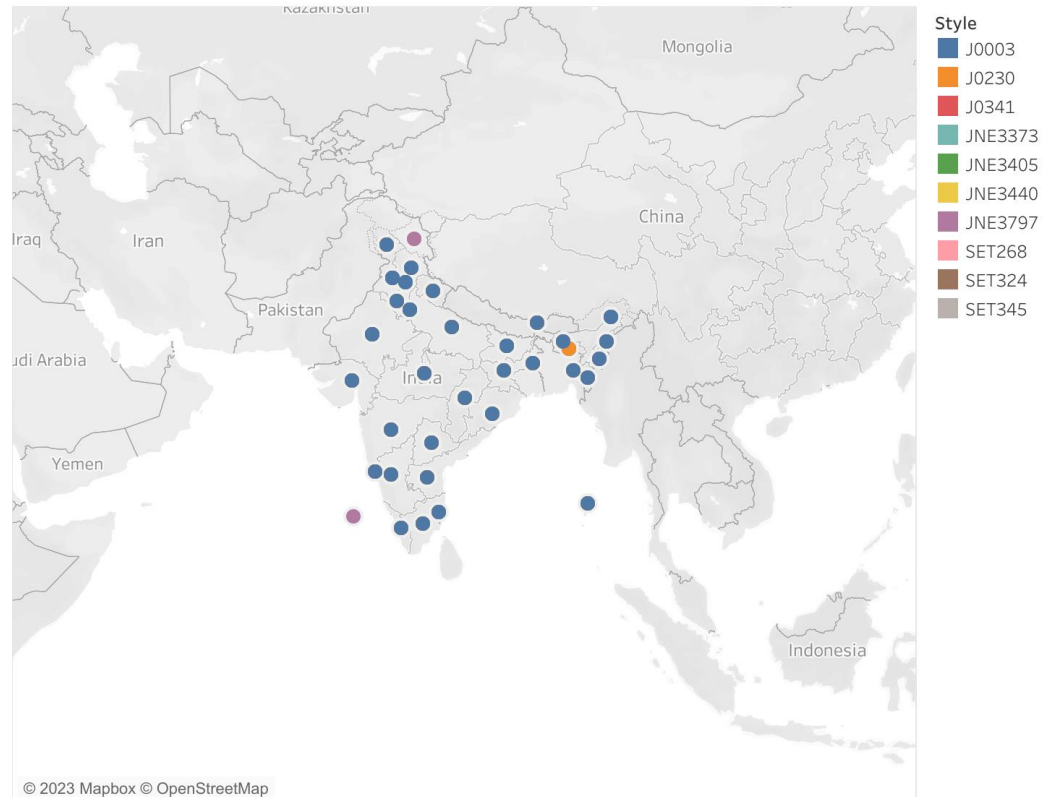


# Executive Analysis

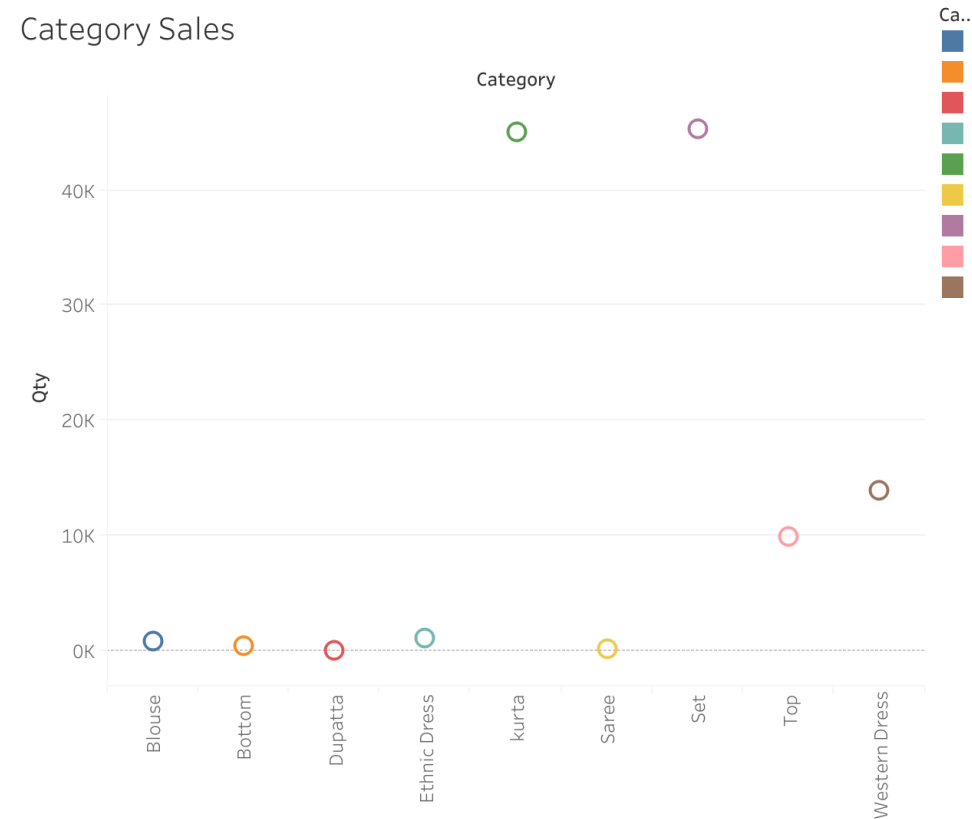


# Sales quantity by region

sales quantity by region



# Category sales



# Total Sales

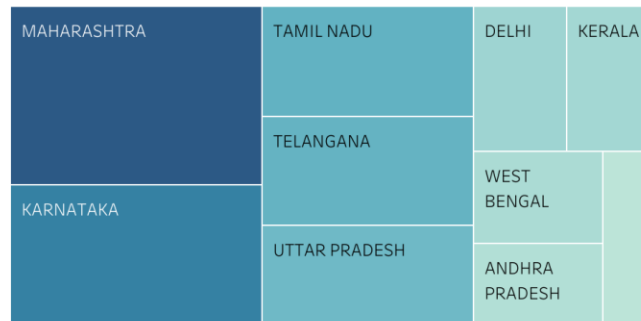
Total  
Quantity

116,649

Total  
Amount

78,592,678

Total sales



Qty

4,149



20,328

# Analysis

## User

### USER

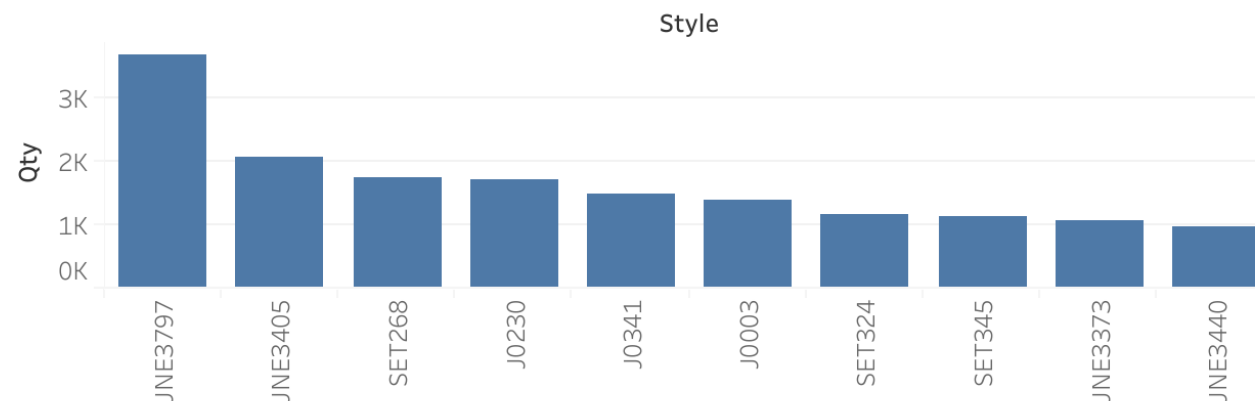
shipping product  
status

Status	Order ID
Cancelled	171-4310662-2005103
	171-5057375-2831560
Pending	408-2964501-8373155
Shipped	403-4984515-8861958
	404-3701762-8241125
Shipped -	171-0706521-2133101
Delivered to	403-0173977-3041148
Buyer	404-9932919-6662730

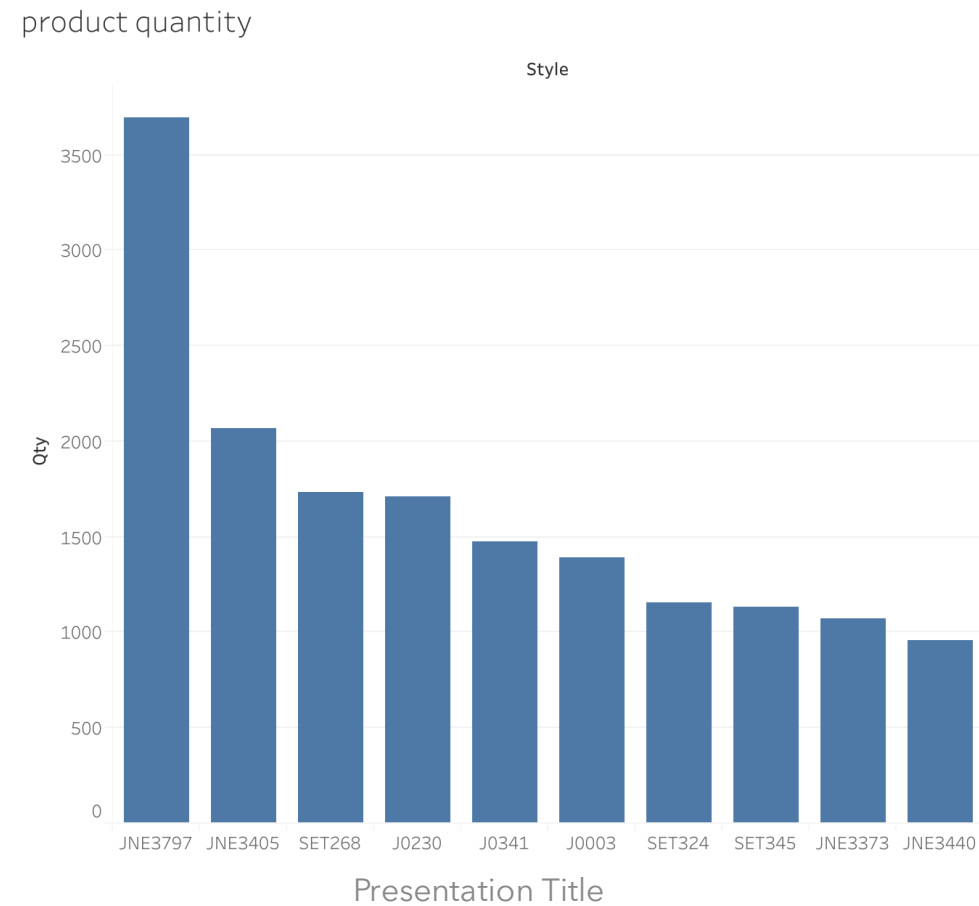
display promotion id

Category	Promotion-Ids
Set	Amazon PLCC Free-Financ..
	Duplicated A12RHGVGR..
	Duplicated AYTJSBA8ZO..
Top	IN Core Free Shipping 20..
	Amazon PLCC Free-Financ..
	Amazon PLCC Free-Financ..
	Amazon PLCC Free-Financ..
	Amazon PLCC Free-Financ..
	Amazon PLCC Free-Financ..

product quantity



# Product Quantity





# Thank you

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Group 10

Jagan Kumar Galla

Tarun Varma Mudunuri

Abhiram Reddy Gunutula

Bhandavi Reddy Adulapuram

Manasa Reddy Valluru

Surangana Navuduru