

## Table of Content

S. no	Particular		Page no.
1	Introduction		2
2	Background		2
3	Data Analysis Process		3
	3.1	Ask	3
	3.2	Prepare	3
	3.3	Process	5
	3.4	Analyze and Share	5
	3.5	Act	12

# Introduction

In this case study, I will perform many real-world tasks of a junior data analyst at a fictional garment retailer, Vrinda Store. In order to answer the key business questions, I will follow the steps of the data process: Ask, Prepare, Process, Analyse, Share, and Act.

## Background

### Vrinda Store:

- ☐ Vrinda Store is a garment retailer company. Vrinda Store sells its product on different online platforms including Ajio, Amazon, Flipkart, Meesho, Myntra and Nalli.
- ☐ Vrinda store wants to create an annual sales report for 2022. So that, Vrinda Store can understand their customers and grow more sales in 2023.

### Scenario:

I am assuming to be a junior data analyst working in the marketing analyst team at Vrinda Store, a Garment retailer. The director of marketing believes the company's future success depends on their customers and grow more sales in 2023. Therefore, my team wants to understand how different variables affected sales and growth of company in 2022.

From these insights, my team will design a new marketing strategy to grow more sales in 2023. But first, Vrinda Store executives must approve our recommendations, so they must be backed up with compelling data insights and professional data visualizations.

# Data Analysis Process

## Ask

### Business Task

Vrinda store wants to create an annual sales report for 2022. So that, Vrinda can understand their customers and grow more sales in 2023.

### Analysis Questions and Queries.

1. Compare the sales and orders using single chart
2. Which month got the highest sales and order?
3. Which month got the lowest sales and order?
4. Who purchased more, men or women in 2022?
5. What are different order status in 2022?
6. List top 5 states contributing to the sales?
7. Relation between age and gender based on number of orders
8. Which channel is contributing to maximum sales?

## Prepare

### Data source

I will use Vrinda Store sales data to analyze and identify trends from Jan 2022 to Dec 2022 which can be downloaded from Github website.

This is public data that can be used to explore how different customer types buying different products of Vrinda Store from all over India.

## Data organization

There is one excel file named 'Vrinda Store Data Analysis (raw data).xlsx' includes information for one year of sales data with column names such as index, Order ID, Cust ID, Gender, Age, Date, Status, Channel, SKU, Category, Size, Qty, currency, Amount, ship-city, ship-state, ship-postal-code, ship-country, B2B.

Microsoft ExcelFileEditViewInsertFormatToolsDataWindowHelp

Vrinda Store Data Analysis (raw data)

Q Search Sheet

HomeInsertDrawPage LayoutFormulasDataReviewViewDeveloper

Share

Cut

Copy

Paste

Format

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11

A A

Wrap Text

General

Conditional Formatting

Format as Table

Cell Styles

Insert

Delete

Format

Auto-sum

Fill

Clear

Sort & Filter

Find & Select

01

fx

ship-city

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Index	Order ID	Cust ID	Gender	Age	Date	Status	Channel	SKU	Category	Size	Qty	currency	Amount	ship-city	ship-state	ship-postal-code	ship-country	B2B
2	1	171-1029312-3038738	1029312	Women	44	04/12/22	Delivered	Myntra	JNE1233-BLUE-KR-031-XXL	kurta	XXL	1	INR	376	MOHAU	PUNJAB	140301	IN	FALSE
3	2	405-2183842-2225946	2183842	Women	29	04/12/22	Delivered	Ajio	SET414-KR-NP-L	Set	L	1	INR	1449	GURUGRAM	HARYANA	122002	IN	FALSE
4	3	171-1641533-8921966	1641533	Women	67	04/12/22	Delivered	Myntra	SET261-KR-PP-S	Set	S	1	INR	453	KOLKATA	WEST BENGAL	700029	IN	FALSE
5	4	404-7490807-6300351	7490807	Women	20	04/12/22	Delivered	Amazon	SET110-KR-PP-M	Set	M	1	INR	729	THANJAVUR	TAMIL NADU	613007	IN	FALSE
6	5	403-9293516-4577154	9293516	Women	62	04/12/22	Delivered	Myntra	JNE2294-KR-A-XXL	kurta	XXL	1	INR	544	GURUGRAM	HARYANA	122001	IN	FALSE
7	6	407-1298130-0368305	1298130	Men	49	04/12/22	Delivered	Flipkart	JNE3797-KR-XXL	Western Dress	XXL	One	INR	735	SANGU MIRAJ KUPWAD	MAHARASHTRA	416436	IN	FALSE
8	7	407-1298130-0368305	1298130	W	23	04/12/22	Delivered	Meesho	JNE3801-KR-XXL	kurta	XXL	One	INR	735	BENGALURU	KARNATAKA	560029	IN	FALSE
9	8	171-5561216-3398711	5561216	W	70	04/12/22	Delivered	Others	JNE3405-KR-M	kurta	M	One	INR	435	GURUGRAM	HARYANA	122001	IN	FALSE
10	9	408-2935263-2935550	2935263	W	75	04/12/22	Delivered	Amazon	JNE3474-KR-E-XL	kurta	XL	One	INR	385	BENGALURU	KARNATAKA	562149	IN	FALSE
11	10	404-2648970-9042715	2648970	W	43	04/12/22	Delivered	Myntra	JNE3466-KR-L	kurta	L	One	INR	771	VIJAYAWADA	ANDHRA PRADESH	520002	IN	FALSE
12	11	404-2648970-9042715	2648970	W	76	04/12/22	Delivered	Amazon	JNE3795-KR-S	kurta	S	One	INR	517	THIRUVANANTHAPURAM	KERALA	695018	IN	FALSE
13	12	404-2648970-9042715	2648970	Women	45	04/12/22	Delivered	Myntra	J0181-TP-M	Top	M	1	INR	399	ARAKONAM	TAMIL NADU	631003	IN	FALSE
14	13	408-0265357-4939534	265357	Women	18	04/12/22	Delivered	Amazon	SET217-KR-PP-XL	Set	XL	1	INR	786	GUWAHATI	ASSAM	781017	IN	FALSE
15	14	403-9268874-7296313	9268874	Men	44	04/12/22	Delivered	Myntra	SET185-KR-NP-M	Set	M	1	INR	911	BENGALURU	KARNATAKA	562125	IN	FALSE
16	15	407-0442660-2736366	442660	Women	52	04/12/22	Delivered	Amazon	SET333-KR-DPT-M	Set	M	1	INR	967	HYDERABAD	TELANGANA	500098	IN	FALSE
17	16	406-7482261-1657136	7482261	Women	18	04/12/22	Delivered	Nalli	J0124-TP-L	Top	L	1	INR	523	NEW DELHI	DELHI	110062	IN	FALSE
18	17	407-7039962-7080347	7039962	Men	30	04/12/22	Delivered	Meesho	SET304-KR-DPT-XL	Set	XL	1	INR	1115	Bhubaneswar	ODISHA	751022	IN	FALSE
19	18	407-3422488-7373923	3422488	Women	48	04/12/22	Delivered	Others	SET184-KR-PP-XS	Set	XS	1	INR	563	SIROHI	RAJASTHAN	307001	IN	FALSE
20	19	171-8974687-6745940	8974687	Men	24	04/12/22	Delivered	Myntra	J0161-DR-XXL	Western Dress	XXL	1	INR	473	MUMBAI	MAHARASHTRA	400097	IN	FALSE
21	20	406-0244536-2177175	244536	Women	46	04/12/22	Delivered	Amazon	SET233-KR-PP-M	Set	M	1	INR	545	AMRITSAR	PUNJAB	143001	IN	FALSE
22	21	404-4376789-3345166	4376789	Women	43	04/12/22	Delivered	Nalli	J0231-SKD-XXXL	Set	3XL	1	INR	1164	LUCKNOW	UTTAR PRADESH	226024	IN	FALSE
23	22	408-1943310-9789160	1943310	Men	31	04/12/22	Refunded	Myntra	J0339-DR-XXL	Western Dress	XXL	1	INR	743	NEW DELHI	DELHI	110087	IN	FALSE
24	23	403-0950590-5005155	950590	Men	30	04/12/22	Delivered	Myntra	SET210-KR-PP-XXXL	Set	3XL	1	INR	575	MADURAI	TAMIL NADU	625014	IN	FALSE
25	24	406-3935670-5720350	3935670	Women	19	04/12/22	Delivered	Ajio	SET110-KR-PP-XS	Set	XS	1	INR	788	Meerut	UTTAR PRADESH	250002	IN	FALSE
26	25	402-0398999-0011565	398999	Women	37	04/12/22	Delivered	Amazon	SET273-KR-NP-M	Set	M	1	INR	612	HYDERABAD	TELANGANA	500060	IN	FALSE
27	26	403-5438780-7231546	5438780	Women	37	04/12/22	Delivered	Others	MEN5025-KR-XXL	kurta	XXL	1	INR	533	INDORE	MADHYA PRADESH	452014	IN	FALSE
28	27	406-8343960-8137102	8343960	Women	62	04/12/22	Delivered	Flipkart	JNE3690-TU-XL	Top	XL	1	INR	484	DAVANAGERE	KARNATAKA	577004	IN	FALSE
29	28	406-0986513-0498758	986513	Men	20	04/12/22	Delivered	Flipkart	SET184-KR-PP-XXXL	Set	3XL	1	INR	563	RUDRAPUR	UTTARAKHAND	263153	IN	FALSE
30	29	406-0947452-6044339	947452	Men	77	04/12/22	Delivered	Flipkart	JNE3797-KR-XXL	Western Dress	XXL	1	INR	735	CHENNAI	TAMIL NADU	600103	IN	FALSE
31	30	406-1326018-3426760	1326018	Men	26	04/12/22	Delivered	Amazon	SET183-KR-DH-XS	Set	XS	1	INR	759	PRAYAGRAJ	UTTAR PRADESH	230304	IN	FALSE
32	31	406-9281717-2212317	9281717	Men	40	04/12/22	Delivered	Amazon	JNE3797-KR-XXL	Western Dress	XXL	1	INR	715	GREAT NICOBAR	ANDAMAN & NICOBAR	744302	IN	FALSE
33	32	408-6866119-6793128	6866119	Men	52	04/12/22	Delivered	Amazon	J0414-DR-XXL	Western Dress	XXL	1	INR	885	AHMEDABAD	GUJARAT	380058	IN	FALSE
34	33	403-9400852-1350710	9400852	Women	38	04/12/22	Delivered	Others	JNE3601-KR-M	kurta	M	1	INR	301	SALEM	TAMIL NADU	636007	IN	FALSE
35	34	408-2606836-0473931	2606836	Men	39	04/12/22	Delivered	Myntra	J0231-SKD-XL	Set	XL	1	INR	1238	GUWAHATI	ASSAM	781020	IN	FALSE
36	35	405-8481179-1130753	8481179	Men	37	04/12/22	Delivered	Amazon	SET320-KR-NP-S	Set	S	1	INR	856	CHENNAI	TAMIL NADU	600119	IN	FALSE
37	36	406-9686095-5057139	9686095	Women	73	04/12/22	Delivered	Flipkart	J0351-SET-L	Set	L	1	INR	650	VADODARA	GUJARAT	390021	IN	FALSE
38	37	404-9033015-7527503	9033015	Women	41	04/12/22	Delivered	Amazon	JNE3368-KR-XL	kurta	XL	1	INR	449	Payyanur	KERALA	670309	IN	FALSE

Vrinda Store

Project Video Link

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ReadyAccessibility: Investigate

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## Process

### Data exploration

Microsoft Excel is used for data exploration and to get familiarize with the data

### Data Cleaning

Data cleaning and modification is done with the help of functions and formulas in Microsoft Excel

- ☐ Various Empty Rows were deleted and Rows that contained empty cell were either deleted or modified according to old data.
- ☐ Data types of some columns was changed for the purpose of data analysis.
- ☐ Some new columns were added with the help of old data.
- ☐ Some ambiguous data that would create hindrance while data analysis, was corrected.

## Analyse & Share

After cleaning the data, it is ready for analysis. Microsoft excel is used for Data Analysis.

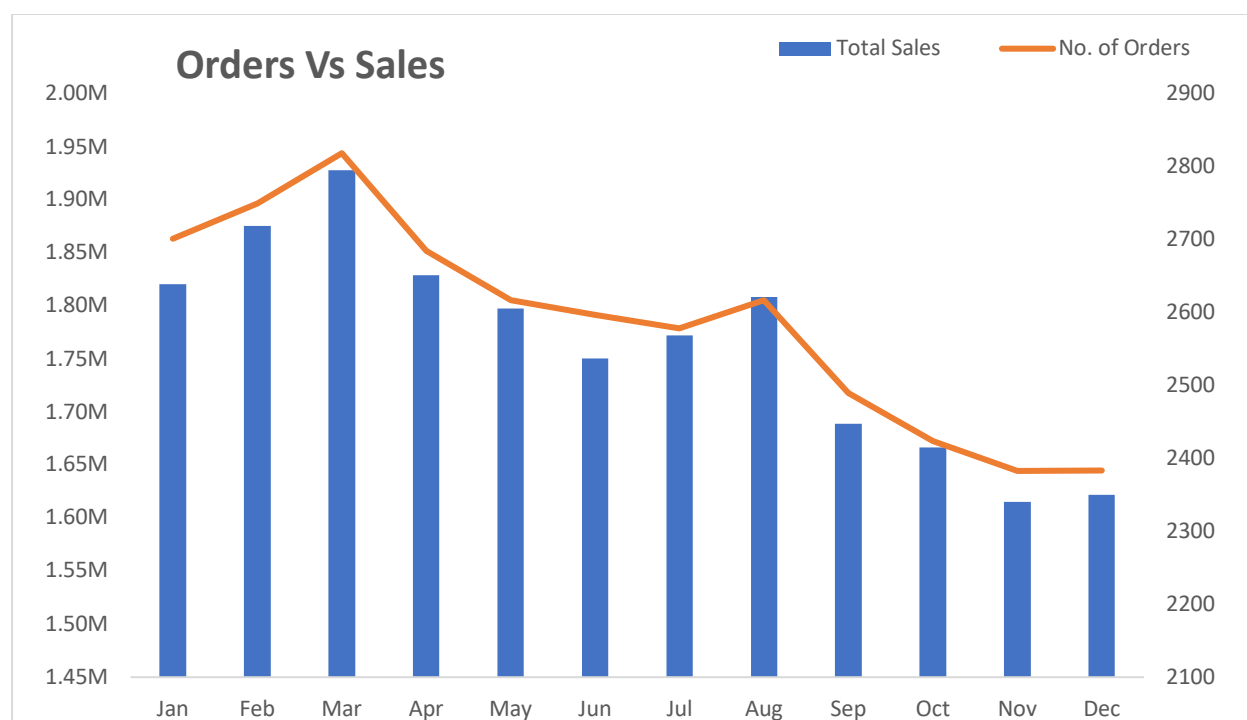
In data analysis we will find the answers to the Data Analysis Questions and Queries.

1. Compare the sales and orders using single chart.
2. Which month got the highest sales and order?
3. Which month got the lowest sales and order?

Pivot table of total sales and total numbers of orders in each month is prepared in Microsoft Excel with the Vrinda Store sales data.

Month	Total Sales	No. of Orders
Jan	1820601	2702
Feb	1875932	2750
Mar	1928066	2819
Apr	1829263	2685
May	1797822	2617
Jun	1750966	2597
Jul	1772300	2579
Aug	1808505	2617
Sep	1688871	2490
Oct	1666662	2424
Nov	1615356	2383
Dec	1622033	2384

From pivot table Pivot histogram chart is and line chart is prepared to show the clear visualization of relationship between total numbers of orders and Total Sales.



From the above analysis it is clear that month of march recorded both highest numbers of orders and total sales and month of November recorded lowest numbers of orders and total sales.

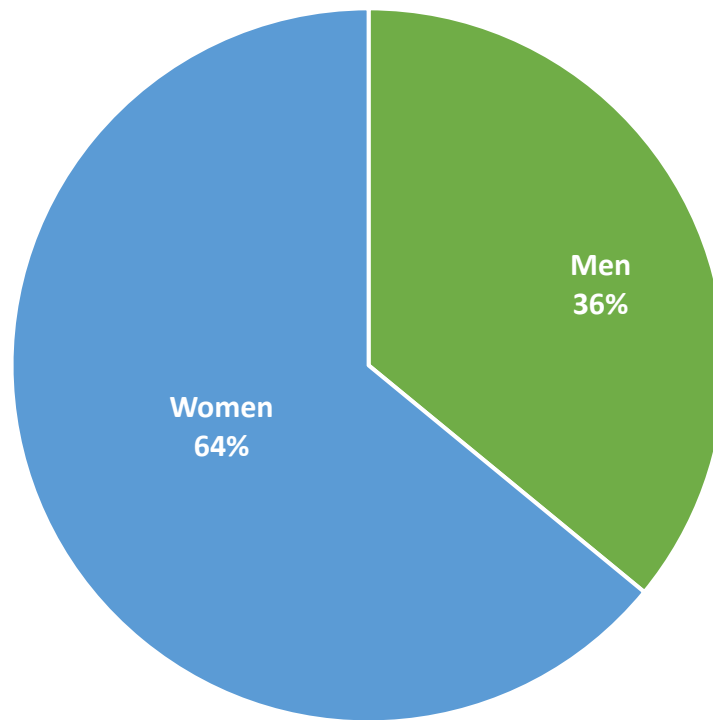
#### 4. Who purchased more, men or women in 2022?

Pivot table of total sale done by men and women is created.

Gender	Sum of Amount
Men	7613604
Women	13562773

With the help of pivot table of total sales by men and women a pivot pie chart is created in Microsoft Excel.

### Sales : Men Vs Women



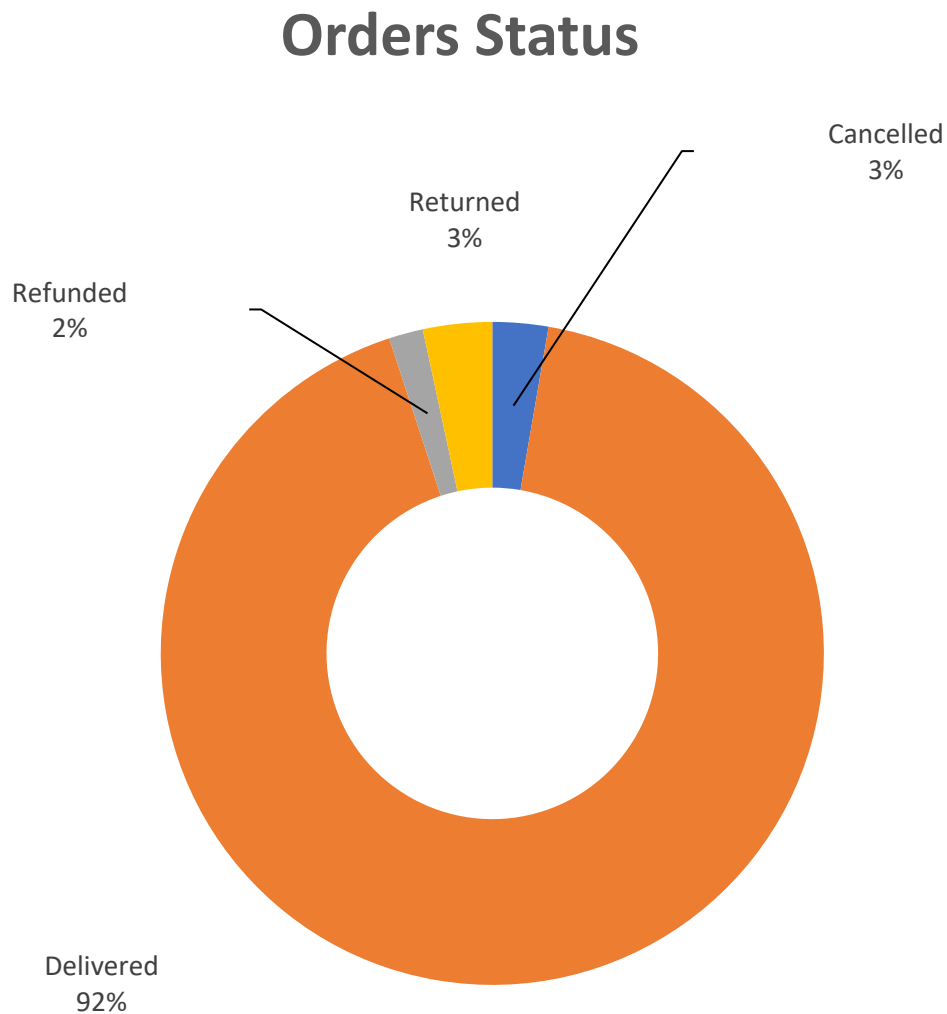
From above analysis it is evident that shopping done by women from Vrinda Store is more than shopping done by men.

### 5. What is different order status in 2022?

A pivot table is created in Microsoft Excel with the data of aggregate number of order ids and their order status.

Order Status	Count of Order ID
Cancelled	844
Delivered	28641
Refunded	517
Returned	1045

From the pivot table prepared from the data of order ids and their order status a pivot pie chart is prepared in Microsoft excel.



This analysis shows the total aggregate order status of the year. 92% orders are delivered.

#### 6. List top 5 states contributing to the sales?

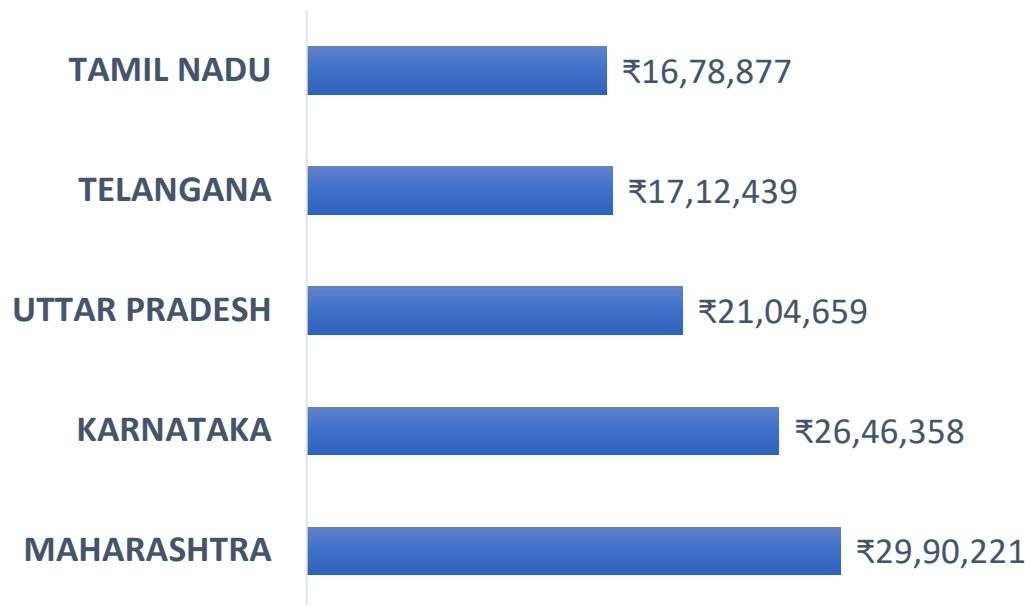
A pivot table is prepared from the sales data of every state and top 5 is selected.

State Name	Total Sales
MAHARASHTRA	2990221
KARNATAKA	2646358
UTTAR PRADESH	2104659
TELANGANA	1712439
TAMIL NADU	1678877



From the pivot table of top 5 state contributing to the sale a pivot histogram chart is prepared.

## Sale: Top 5 States



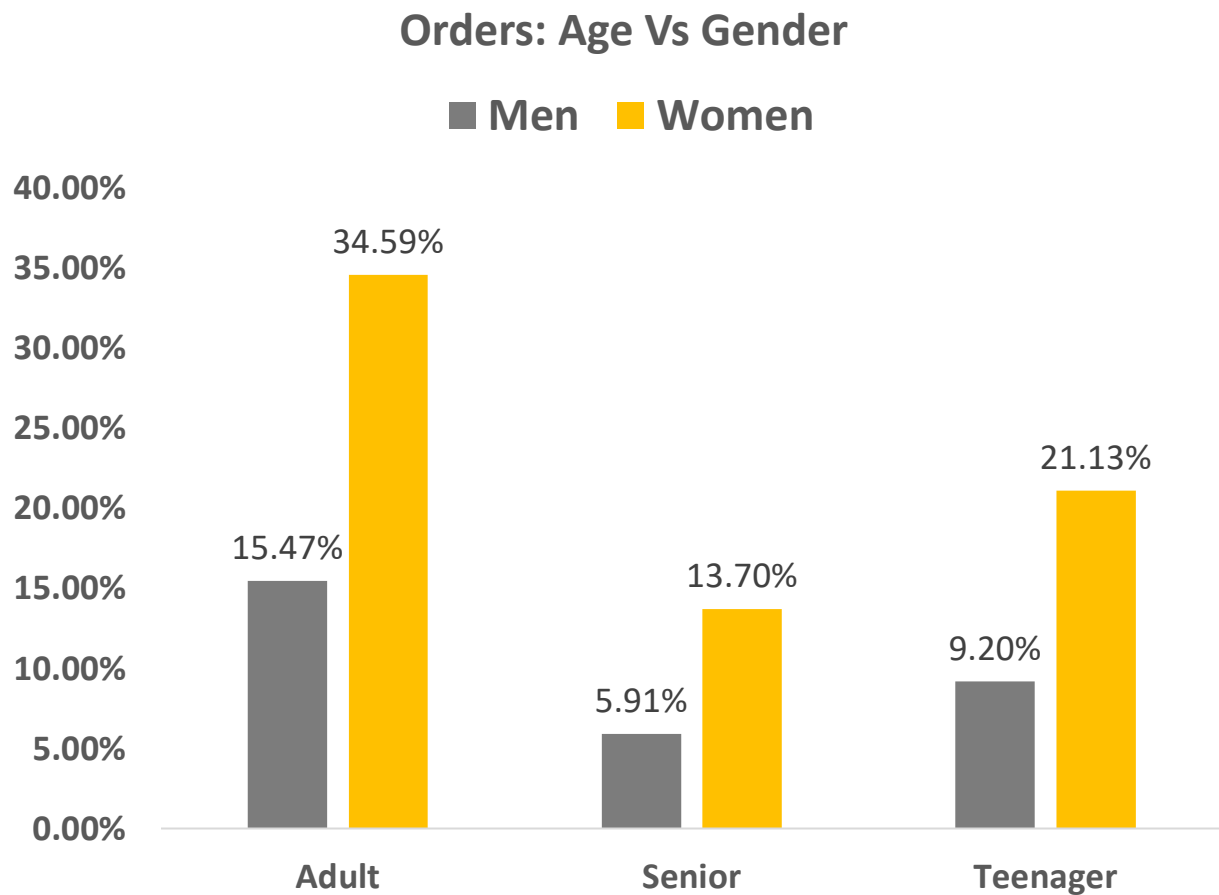
From above analysis it is found that Maharashtra, Karnataka, Uttar Pradesh, Telangana and Tamil Nadu are top five states with highest number of sales.

### 7. Relation between age and gender based on number of orders

A pivot table is created from gender, age group and number of orders, percentage of men and women in each age group is calculated in this pivot table.

Age Group	Men	Women
Adult	15.47%	34.59%
Senior	5.91%	13.70%
Teenager	9.20%	21.13%

From this pivot table a pivot histogram chart is prepared to visualize the result of this analysis.



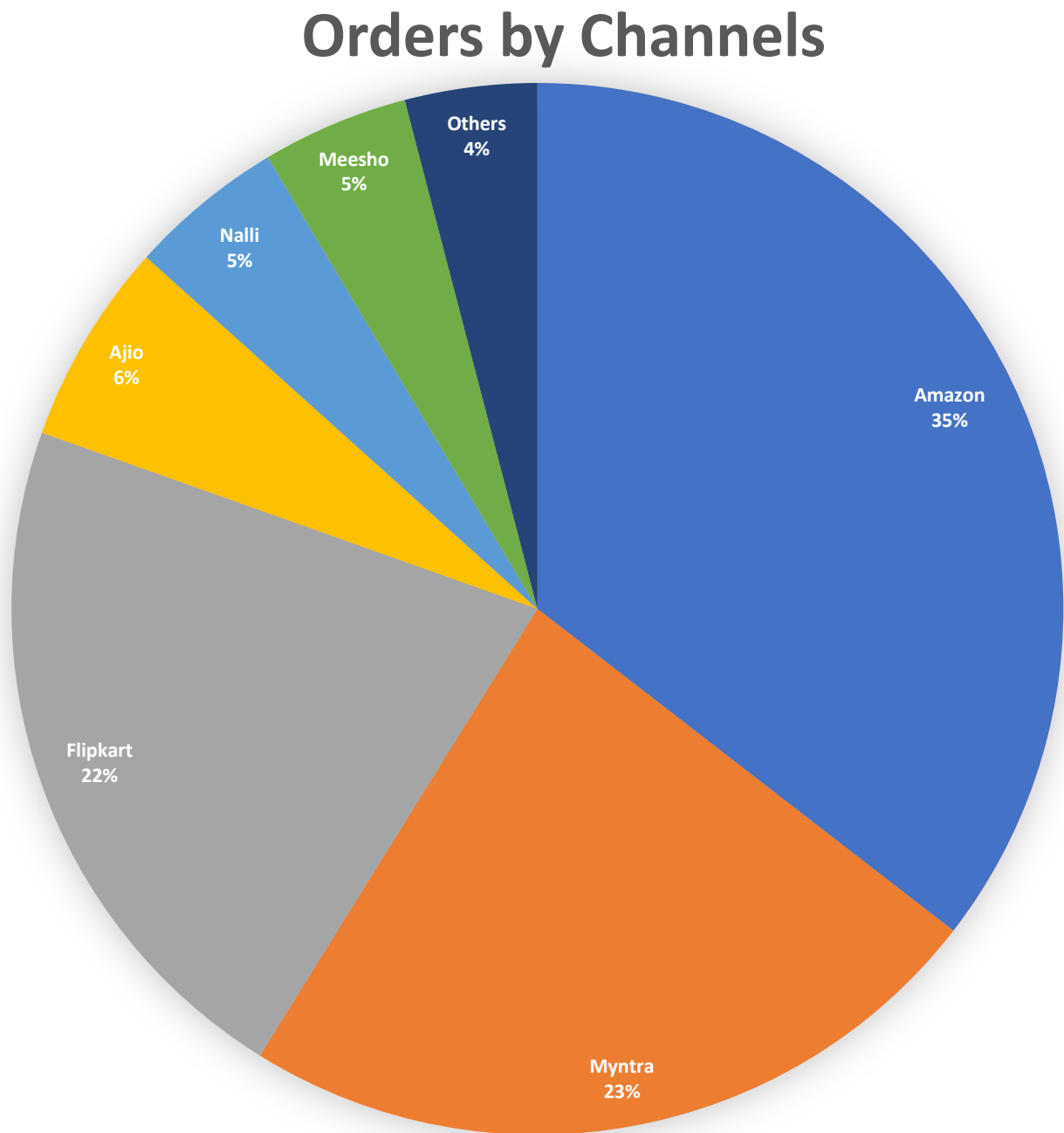
From the above analysis it is evident that adults are with the greatest number of orders and women has ordered most in each age group.

#### 8. Which channel is contributing to maximum sales?

With sales data a pivot table is prepared of percentage share of sales of every channel.

Channel Name	Count of Order ID
Amazon	35.5%
Myntra	23.4%
Flipkart	21.6%
Ajio	6.2%
Nalli	4.8%
Meesho	4.5%
Others	4.1%

With pivot table of percentage share in total sale of every channel a pivot pie chart is prepared.



From this analysis we can state that Amazon has the largest share of sales among each channel.

## Summary of analysis

- ☐ Month of march recorded both highest numbers of orders and total sales, and in November least number of orders and sales is recorded.
- ☐ From above analysis it is evident that shopping done by women from Vrinda Store is more than shopping done by men.
- ☐ 92% orders are delivered.
- ☐ Maharashtra, Karnataka, Uttar Pradesh, Telangana and Tamil Nadu are top five states with highest number of sales.
- ☐ adults are with the greatest number of orders and women has ordered most in each age group.
- ☐ Amazon has the largest share of sales among each channel, and Ajio, Nalli and Meesho has the smallest share in sales.

## Act

After thorough review of analysis of sales data of 2022 following points have been concluded

- ☐ Vrinda Store should maintain its customer demand in the highest sales month as well as create new demand for products in months with lowest number of sales.
- ☐ Store should focus more on men clothing as well as maintain its women customer base.
- ☐ Store should include more collection for elderly and teenagers and include more varieties for its adult customer base to maintain current as well as create new demand.
- ☐ Vrinda Store is selling very little to no quantity on other than Amazon, Flipkart and Myntra, more analysis is needed in that particular area to find the reason behind this.