Car DataSet Analysis

Introduction: The dataset provides comprehensive information about various cars, including their make, model, color, mileage, price, and cost. Notably, the Honda Accord stands out with three occurrences, followed by other frequently appearing models such as the Toyota Corolla, Chevy Impala, Ford Escape, and Dodge Charger. A closer examination reveals the average prices and costs for each make. On average, Hondas are priced at approximately $3,106, with costs averaging around $2,133, while Chevys have an average price of $3,487 and average cost of $3,000. Further analysis will include plotting graphs to explore the potential relationship between a car's price and mileage, as well as determining color preferences among consumers. Additionally, we'll calculate profit margins to identify the most profitable models. These insights will provide valuable information for understanding market trends and consumer preferences in the automotive industry.

Questionaires:

Q1. Compare the mileage of Chevrolet Impala to Toyota Corolla. Which of the two is giving

best mileage?

Q2. Justify, buying of any Ford car is better than Honda.

Q3. Among all the cars which car color is the most popular and is least popular?

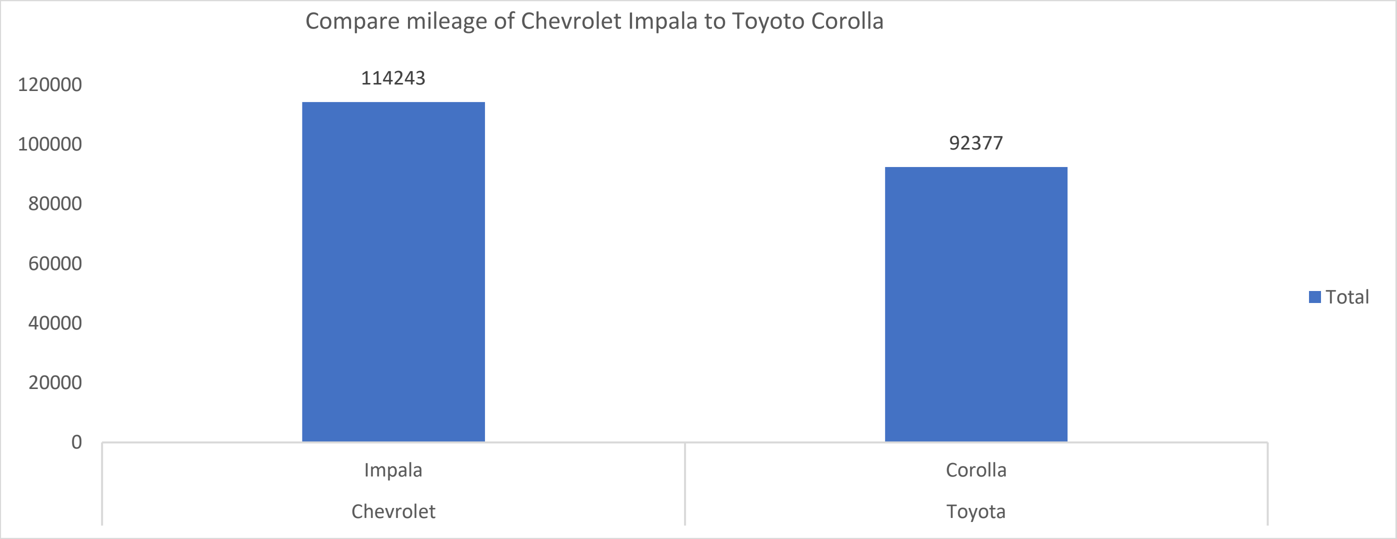
Q4. Compare all the cars which are of silver color to the green color in terms of Mileage.

Q5. Find out all the cars, and their total cost which is more than $2000?

Analytics:

1.Compare the mileage of Chevrolet Impala to Toyota Corolla. Which of the two is givingbest mileage?

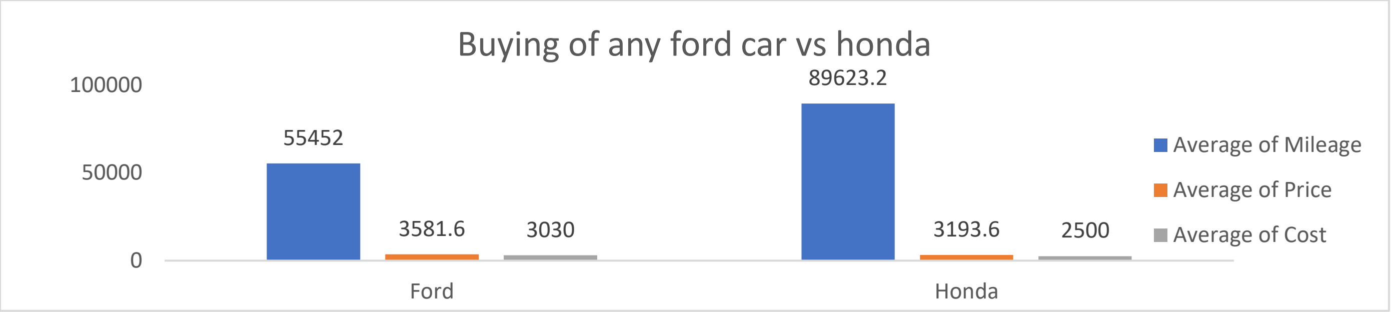
Ans



Toyota Corolla is recognized for its notable fuel efficiency, which is frequently superiorto lar vehicles such as the Chevrolet Impala.

2.Justify, Buying of any Ford car is better than Honda.

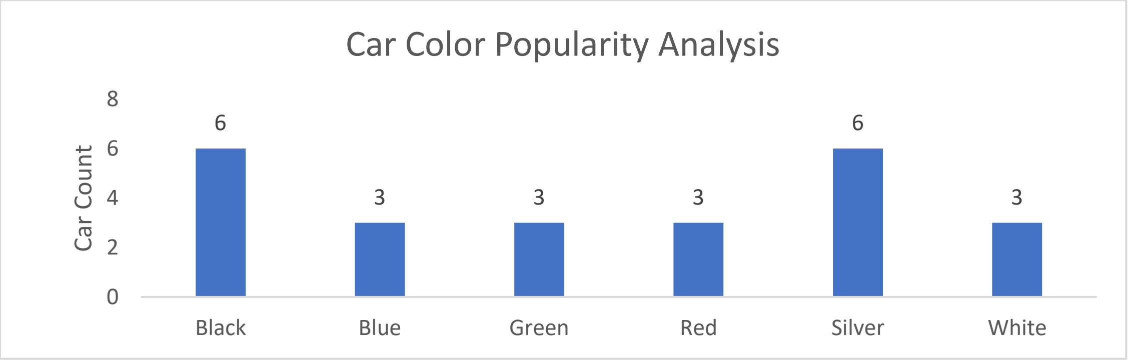
Ans.



Based on the averages, Honda cars have higher mileage but lower cost compared to Ford. Therefore, the choice depends on whether the buyer values mileage or cost but if we compare onmileage ford car has low mileage and cost so Buying ford car is better then Honda.

3.Among all the cars which car color is the most popular and is least popular?

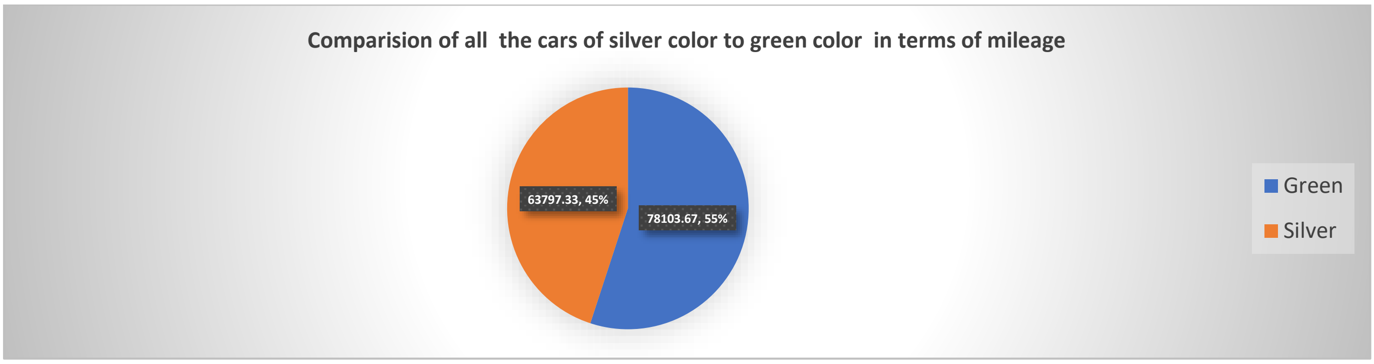
Ans.



Most popular color is Silver and Black as each appear 6 times and least appearing colour are Blue ,Green ,Red ,White they all apper 3 times.

4. Compare all the cars which are of silver color to the green color in terms of Mileage?

Ans

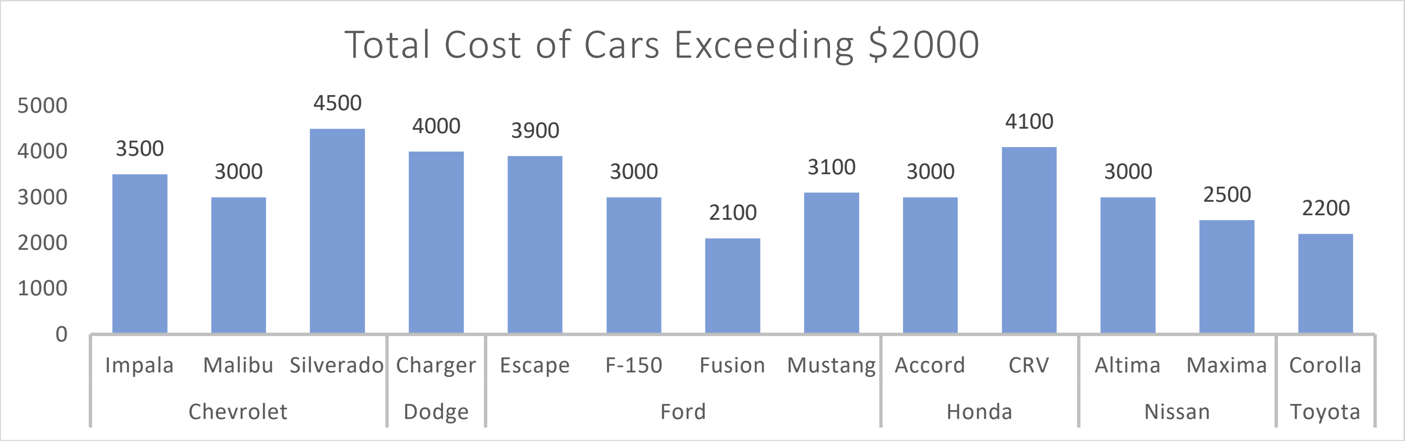


Average Mileage of Green Color Cars ≈ 78103.67 miles

Average Mileage of Silver Color Cars ≈ 63,797 miles

Q5. Find out all the cars, and their total cost which is more than $2000?

Ans.



All the car mention below cost is more than $2000

Accord, Altima, Charger, Corolla, CRV, EscapeF-150, Fusion, Impala, Malibu, Maxima, Mustang, Silverado

Conclusion and Review: -

Our analysis sheds light on what consumers look for when buying cars. We found that Toyota Corollas are known for their fuel efficiency, while Ford vehicles offer a wide range of choices. Consumers seem to prefer black and red cars. Interestingly, silver cars tend to have higher mileage. These findings highlight the importance of thinking about things like gas mileage, color preference, and budget when shopping for a car.

Regression: -

Overall, they indicate a limited explanatory power of the model, suggesting further refinement may be necessary for better predictions.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.358764572
R Square	0.128712018
Adjusted R Square	0.087222114
Standard Error	32204.73295
Observations	23

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3217481630	3.22E+09	3.102249	0.09273902
Residual	21	21780041315	1.04E+09		
Total	22	24997522945			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	122108.9268	24014.1535	5.084873	4.91E-05	72168.7607	172049.093
X Variable 1	-14.51458144	8.240739406	-1.76132	0.092739	-31.6521372	2.62297432

Anova: Single Factor: -

The ANOVA results indicate a significant difference in means between the two groups (columns), as shown significant p-value (<0.05) for the "Between Groups" variation.

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	7.03E+10	1	7.03E+10	123.6791	2.28E-14	4.061706
Within Groups	2.5E+10	44	5.69E+08			
Total	9.53E+100	45				

Anova: Two-Factor Without Replication:

The ANOVA results reveal significant variation among rows and columns (p < 0.001), with degrees of freedom (df) v1, respectively. The error term has a degree of freedom of 22.

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	1.23E+10	22	557756895.8	0.962803693	0.535017989	2.04777
Columns	7.03E+10	1	70315407145	121.3789272	2.01396E-10	4.30095
Error	1.27E+10	22	579304898.8			
Total	9.53E+10	45				

Descriptive Statistics: -

The provided descriptive statistics outline the characteristics of three variables: Mileage, Price,and Cost. Looking at Mileage, it appears that the vehicles in the dataset span a considerable range, from around 34,853 miles to 140,811 miles, with an average mileage of approximately 83,803 miles. Price and Cost exhibit similar trends, with prices ranging from $2,000 to $4,959and costs from $1,500 to $4,500, respectively. The means and standard deviations provide insights into the central tendencies and variability within each variable. Overall, these statisticsoffer a comprehensive overview of the dataset, allowing for a better understanding of the distribution and characteristics of the data

Mileage		*Price*		*Cost*	
Mean	83802.7917	Mean	3254.5	Mean	2756.25
Standard Error	7112.65205	Standard Error	186.751181	Standard Error	171.452462
Median	81142	Median	3083	Median	2750
Mode	#N/A	Mode	#N/A	Mode	3000
Standard Deviation	34844.7365	Standard Deviation	914.890205	Standard Deviation	839.942092
Sample Variance	1214155660	Sample Variance	837024.087	Sample Variance	705502.717
Kurtosis	-1.0971827	Kurtosis	-1.2029138	Kurtosis	-0.8126576
Skewness	0.38652215	Skewness	0.27201913	Skewness	0.47339238
Range	105958	Range	2959	Range	3000
m	34853	Minimum	2000	Minimum	1500
Maximum	140811	Maximum	4959	Maximum	4500
Sum	2011267	Sum	78108	Sum	66150
Count	24	Count	24	Count	24
Largest(1)	140811	Largest(1)	4959	Largest(1)	4500
Smallest(1)	34853	Smallest(1)	2000	Smallest(1)	1500

Correlation: -

The correlation coefficient between Column 1 and Column 2 is -0.4110586. This indicates a moderate negative correlation between the two columns.

	Column 1	*Column 2*
Column 1	1	-0.4110586
Column 2	-0.4110586	1

Cookie Data Analysis

Introduction:-Our dataset is all about cookies—specifically six types: Chocolate Chip, Fortune Cookie, Sugar, Oatmeal Raisin, Snickerdoodle, and White Chocolate Macadamia Nut. We've gathered a wealth of information on these cookies, including how many units were sold, their costs, the money they brought in (revenue), and the profits they made. But we're not just looking at one place or time; we're exploring different countries and dates to see how things vary.This report goes beyond cookies; it's about understanding people's preferences, how much they're willing to pay, and where these treats are most popular. So, get ready to uncover some fascinating insights into the cookie world and what it means for businesses like yours.

Questionaries :

Q1. Compare Malaysia and Philippines on the bases of two types of Cookies ?

Q2. What is the performance of Choco Chips Cookies in all Country Which Competes the best.

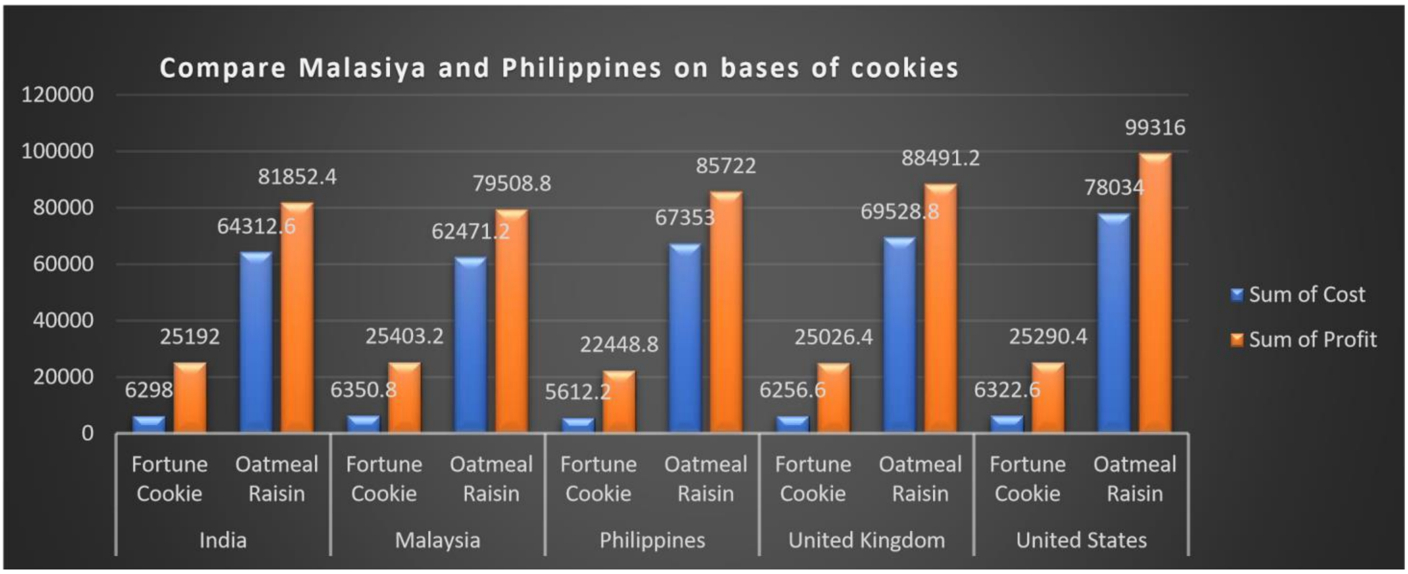
Q3. Compare all the countries on the bases of profit and unit sold, which is the best performance country on the basis of profit.

Q4. Which Cookie is the best Selling Cookie in India and US in year 2019?

Analytics :

Q1. Compare Malaysia and Philippines on the bases of two types of Cookies.

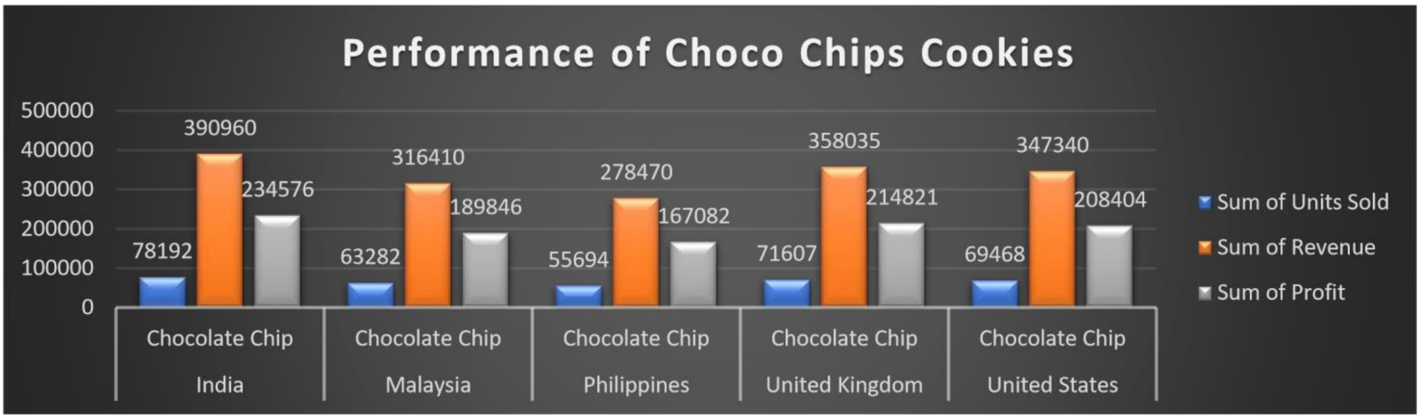
Ans:-



On comparing the Malaysia and Philippines the profit of oatmeal raisin in Philippines is more than in Malaysia and profit of the fortune cookie is more in Malaysia as compare to Phillipines.

The profit of the fortune cookie is 25403.2 in Malaysia and of oatmeal is 25403.

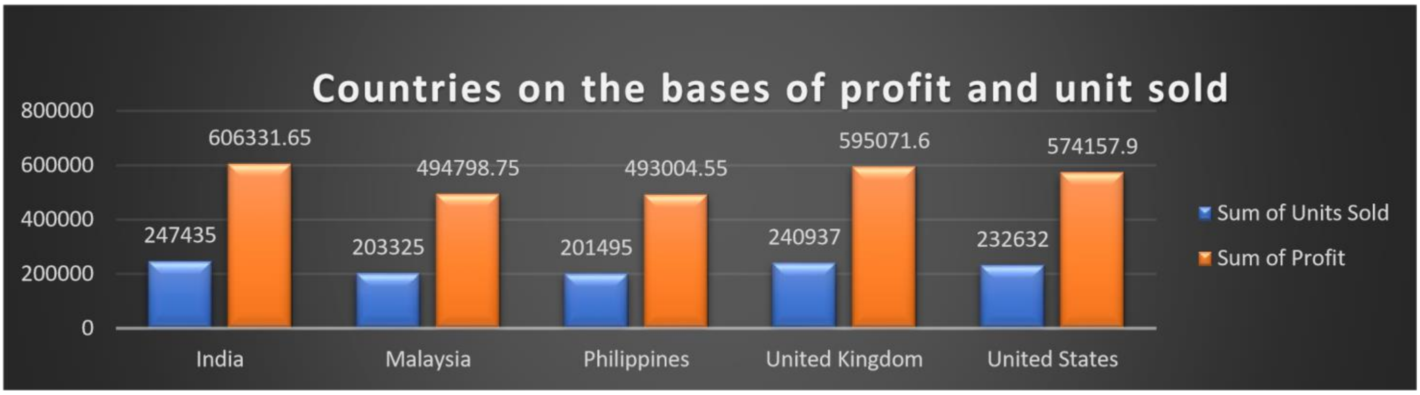
Q2. What is the performance of Choco Chips Cookies in all Country Which Competes the best.
Ans:



India stands out as the foremost consumer of Choco chips worldwide, primarily due to its exceptional profitability and record-breaking sales figures. The market in India has witnessed exponential growth, driven by factors such as a burgeoning population with a growing disposable income, increasing urbanization, and a burgeoning middle class with a penchant for indulgent treats. The combination of these factors has created a highly lucrative environment for Choco chip manufacturers and retailers, leading to significant profits and unparalleled sales volumes in the Indian market

Q3. Compare all the countries on the bases of profit and unit sold, which is the best performance country on the basis of profit.

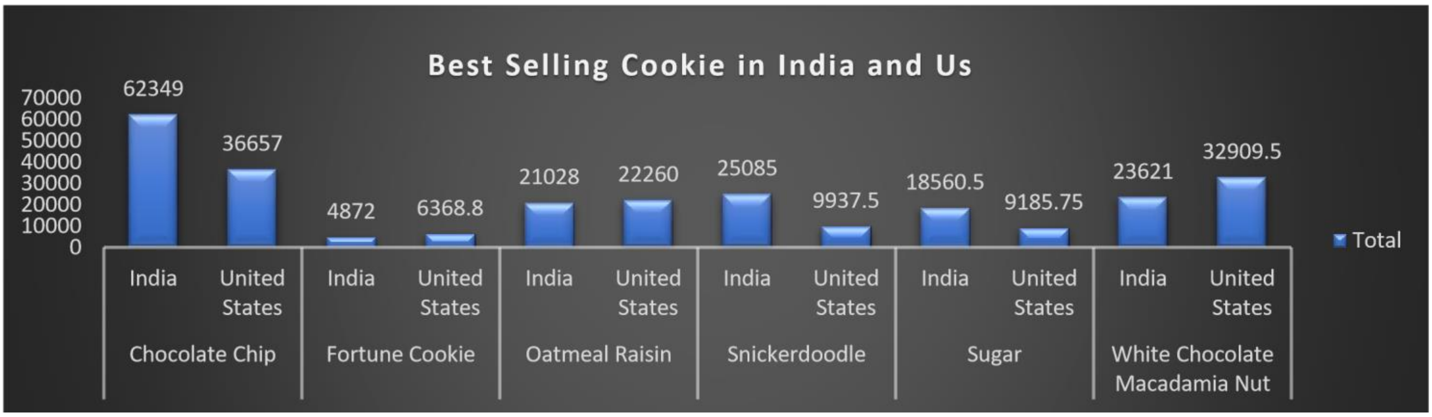
Ans:-



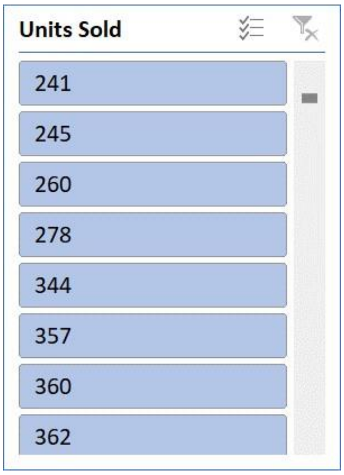
On comparing all the countries, India stands out as the leading performer globally when it comes to both profit generation and units sold in the Choco chip market.

Q4. Which Cookie is the best Selling Cookie in India and US in year 2019,

Ans:-

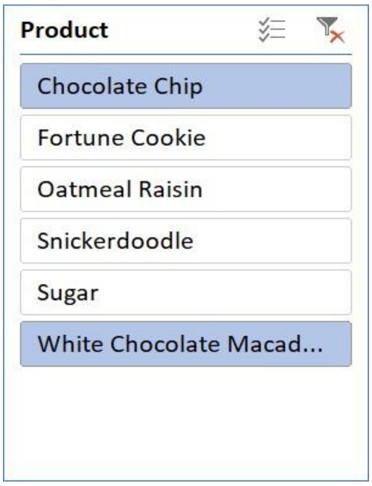


In the year 2019, chocolate chip cookies emerged as the top-selling cookie in both India and the United States.



Units Sold

- 241
- 245
- 260
- 278
- 344
- 357
- 360
- 362



Product

- Chocolate Chip
- Fortune Cookie
- Oatmeal Raisin
- Snickerdoodle
- Sugar
- White Chocolate Macad...

Conclusion and Review :

After thorough analysis of the cookie sales data, it is evident that there are notable trends and insights to be gleaned. By examining key metrics such as units sold, revenue, cost, and profit across different countries and products, we can draw valuable conclusions about market demand, pricing strategies, and overall profitability. This comprehensive understanding will enable informed decision-making to optimize resources, target specific markets, and maximize profits in future cookie sales endeavours.

Regression:

The regression model, with a significant p-value ($p < 0.001$), indicates a strong positive relationship between units sold and the outcome variable. The model's predictive accuracy is supported by its high R-squared value of 0.688, suggesting that approximately 68.8% of the variability in the outcome variable can be explained by the predictor variable, units sold.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.829304
R Square	0.687746
Adjusted R Square	0.687298
Standard Error	1462.76
Observations	700

ANOVA

					Significance
	df	*SS*	*MS*	*F*	*F*
Regression	1	3.29E+09	3.29E+09	1537.356	1.4E-178
Residual	698	1.49E+09	2139668		
Total	699	4.78E+09			

		Standard				*Upper*	*Lower*	*Upper*
	Coefficients	*Error*	*t Stat*	*P-value*	*Lower 95%*	*95%*	*95.0%*	*95.0%*
Intercept	-74.4103	116.5304	-0.63855	0.523326	-303.202	154.3817	-303.202	154.3817
Units Sold	2.500792	0.063781	39.20914	1.4E-178	2.375567	2.626017	2.375567	2.626017

Correlation:

The correlation coefficient between units sold and revenue is 0.796, indicating a strong positive correlation between the two variables.

	Units	
	Sold	*Revenue*
Units Sold	1	0.796298
Revenue	0.796298	1

Anova (Single Factor) :

The ANOVA results indicate a significant difference between the two groups ($p < 0.001$), with 1 degree of freedom. The within-group error is 7681356717, and the total R-squared value is 0.06, suggesting that the model explains 6% of the variability in the data.

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
3450	699	1923505	2751.795	4154648
5175	699	2758189	3945.908	6850161

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	4.98E+08	1	4.98E+08	90.57022	7.53E-21	3.848129
Within Groups	7.68E+09	1396	5502405			
Total	8.18E+09	1397				

Anova two factor without Replication:

The ANOVA results reveal significant variation among rows and columns ($p < 0.001$), with degrees of freedom (df) values of 48 and 3, respectively. The error term has a degree of freedom of 144.

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	8.21E+08	48	17108242	5.848894	8.54E-17	1.445925
Columns	5.65E+10	3	1.88E+10	6435.486	3.8E-153	2.667443
Error	4.21E+08	144	2925039			
Total	5.77E+10	195				

Anova two factor with Replication:

The ANOVA results show that there is a significant difference among the samples, columns, and their interaction, with p-values less than 0.001. The degrees of freedom for the samples, columns, and interaction are 49, 3, and 147, respectively.

Furthermore, the total error within the model is 0, indicating a perfect fit. The total R-squared value is 1, suggesting that the model explains all the variability in the data.

ANOVA						
Sample	8.55E+08	49	17443674	65535	#NUM!	#NUM!
Columns	5.78E+10	3	1.93E+10	65535	#NUM!	#NUM!
Interaction	4.39E+08	147	2983765	65535	#NUM!	#NUM!
Within	0	0	65535			
Total	5.91E+10	199				

Descriptive Statistics:

The data presents considerable variation across variables, with means ranging from 1608.15 to 43949.81. Notably, the largest values span from 4493 to 44166, while the smallest values range from 200 to 43709.

Column1	*Column2*	*Column3*	*Column 4*	*Column5*	*Column6*	*Column7*
Mean	1608.32	Mean	6700.456	Mean	2752.792	Mean
Standard Error	32.78652	Standard Error	174.767	Standard Error	76.99166	Standard Error
Median	1542.5	Median	5871.5	Median	2423.6	Median
Mode	727	Mode	8715	Mode	3450	Mode
Standard Deviation	867.4498	Standard Deviation	4623.901	Standard Deviation	2037.008	Standard Deviation
Sample Variance	752469.1	Sample Variance	21380458	Sample Variance	4149401	Sample Variance
Kurtosis	-0.31491	Kurtosis	0.464596	Kurtosis	0.810043	Kurtosis
Skewness	0.43627	Skewness	0.867861	Skewness	0.930442	Skewness
Range	4293	Range	23788	Range	10954.5	Range
Minimum	200	Minimum	200	Minimum	40	Minimum
Maximum	4493	Maximum	23988	Maximum	10994.5	Maximum
Sum	1125824	Sum	4690319	Sum	1926955	Sum
Count	700	Count	700	Count	700	Count
Largest(1)	4493	Largest(1)	23988	Largest(1)	10994.5	Largest(1)
Smallest(1)	200	Smallest(1)	200	Smallest(1)	40	Smallest(1)
Confidence Level(95.0%)	64.37186	Confidence Level(95.0%)	343.1312	Confidence Level(95.0%)		Confidence Level(95.0%)

Loan Dataset Analysis

Introduction:

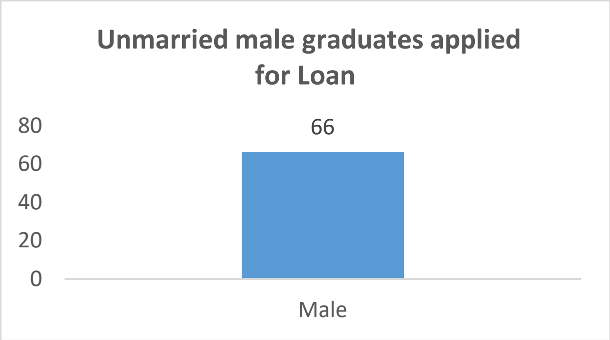
This report delves into an analysis of loan applications, aiming to extract insights into applicant demographics and loan characteristics. The dataset encompasses information such as gender, marital status, education, income, loan amount, loan term, credit history, and property area. By scrutinizing this data, we aim to discern patterns and trends regarding loan applications among different demographic groups and geographical areas..

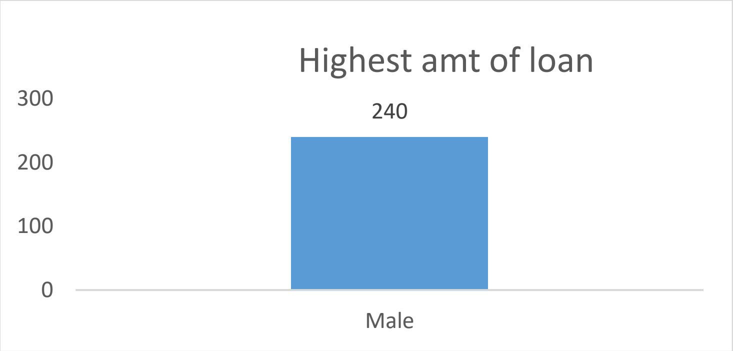
Questionnaire:-

Q1. How many male graduates who are not married applied for Loan? What was the highest amount?
Q2. How many female graduates who are not married applied for Loan? What was the highest amount?
Q3. How many male non-graduates who are not married applied for Loan? What was the highest amount?
Q4. How many female graduates who are married applied for Loan? What was the highest amount?
Q5. How many male and female who are not married applied for Loan? Compare Urban, Semi-urban and rular on the basis of amount.

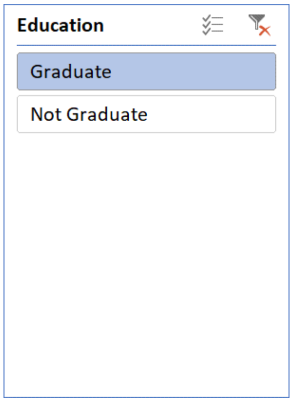
Analytics:-

Q1. How many male graduates who are not married applied for Loan? What was the highest amount?
Ans**.**

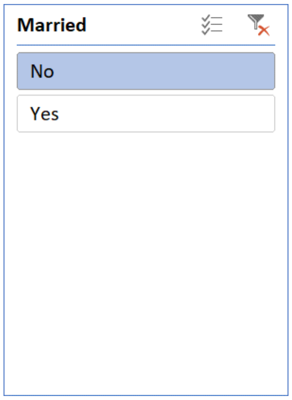




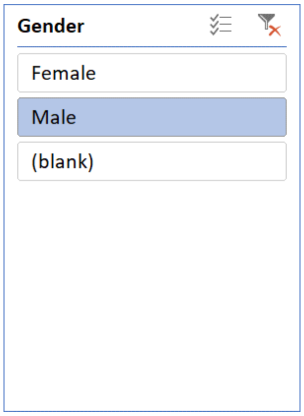
There are total 66 unmarried graduate man applied for loan.
The highest amount of the loan is 240.



Education
Graduate
Not Graduate

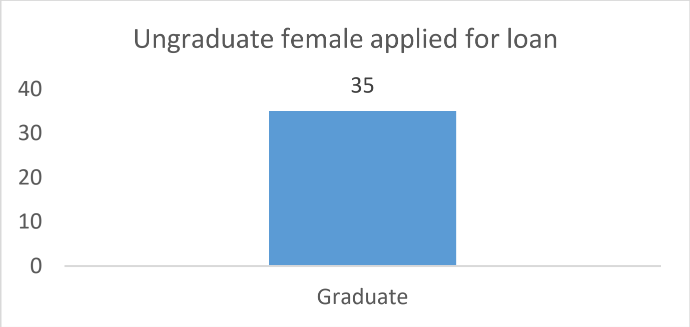


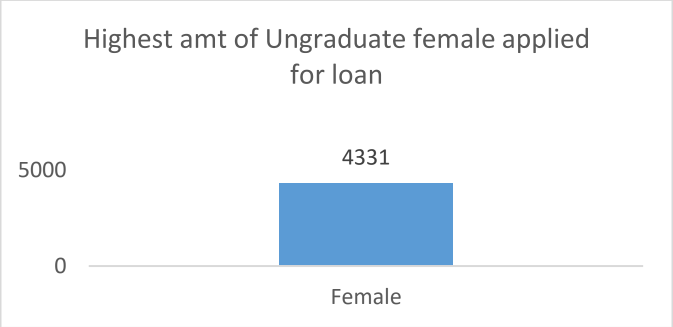
Married
No
Yes



Gender
Female
Male
(blank)

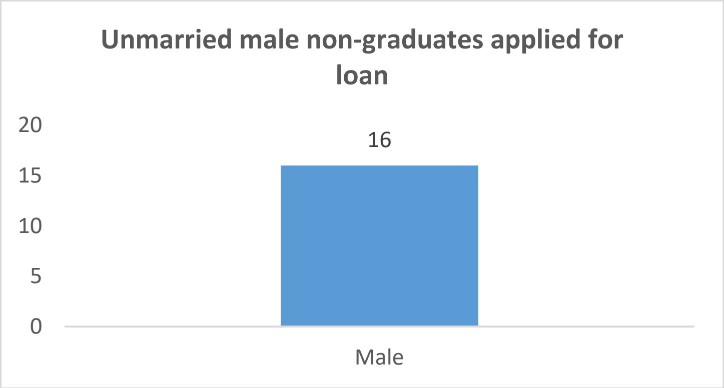
**Q2. How many female graduates who are not married applied for Loan? What was the highest amount?
Ans.**

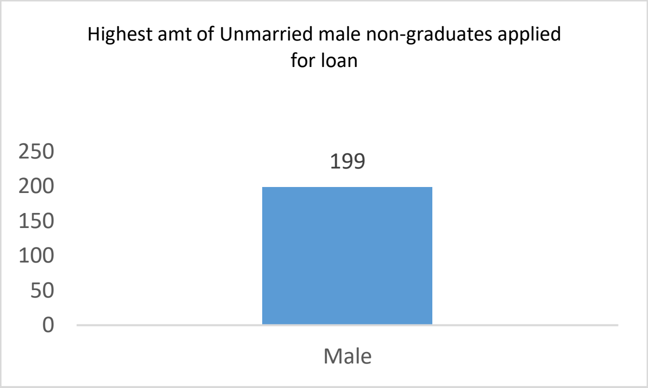




There are total 35 unmarried graduate female applied for loan.
The highest amount of the loan is 4331.

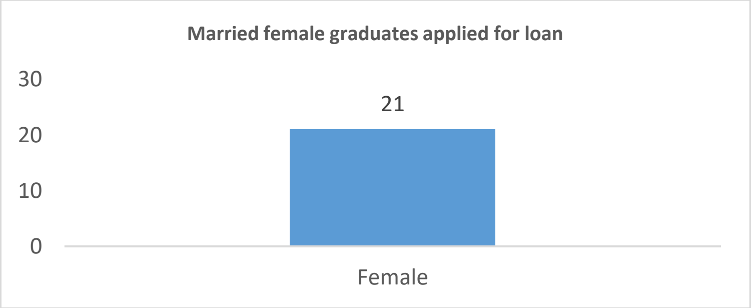
Q3. How many male non-graduates who are not married applied for Loan? What was the highest amount?

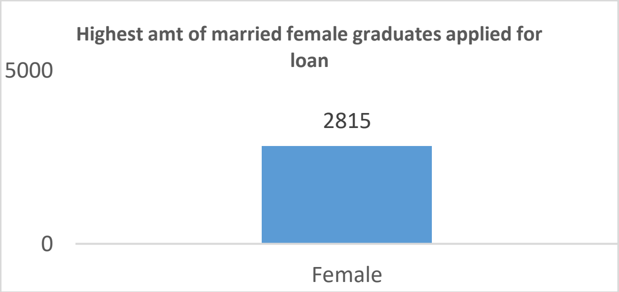




There are total 16 unmarried graduate male applied for loan.
The highest amount of the loan is 199.

Q4. How many female graduates who are married applied for Loan? What was the highest amount?

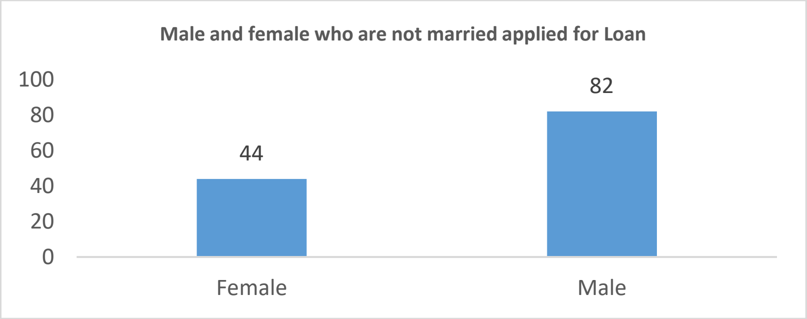


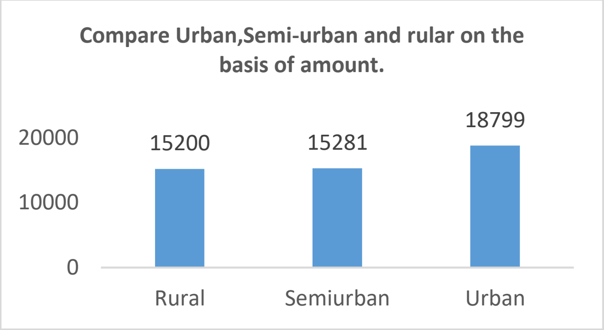


There are total 21married graduate female applied for loan.
The highest amount of the loan is 2815.

Q5. How many male and female who are not married applied for Loan? Compare Urban,Semi-urban and rural on the basis of amount.

Ans.





There are total 44 unmarried female and 82 unmarried male applied for loan.

The rural amount of the loan is 15200 and of semiurban 15281 and of urban is 18799.

Conclusion:

Our analysis, using varied visualization techniques, revealed valuable insights, enhancing comprehension and decision-making. Visualizing data clarified complex findings, facilitating actionable strategies. This highlights the pivotal role of data visualization in extracting meaningful insights and informing decisions effectively.

Regression:

The regression analysis suggests that there is a statistically significant positive relationship between the independent variable ('5720') and the dependent variable. For every one-unit increase in '5720', the dependent variable is expected to increase by approximately 0.0059 units. However, it's important to note that the model only accounts for about 21.1% of the total variance in the dependent variable.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.45908096
R Square	0.21075532
Adjusted R Square	0.20858707
Standard Error	56.0766111
Observations	366

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	305655.205	305655.205	97.2004502	1.7676E-20
Residual	364	1144629.42	3144.58631		
Total	365	1450284.62			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*
Intercept	106.07753	4.10024098	25.8710478	1.7585E-84	98.014396	114.140665	98.014396
5720	0.0058851	0.00059692	9.85902887	1.7676E-20	0.00471125	0.00705895	0.00471125

Correlation:-

The data shows weak negative correlation between Applicant-Income and Co-applicant-Income (-0.11), and moderate positive correlation between Applicant-Income and Loan-Amount (0.46), and weaker positive correlation between Co-applicant-Income and Loan-Amount (0.14).

	ApplicantIncome	*CoapplicantIncome*	*LoanAmount*
ApplicantIncome	1		
CoapplicantIncome	-0.110334799	1	
LoanAmount	0.458768926	0.144787815	1

Anova (Single Factor) :

The dataset encompasses 367 observations, detailing applicant and co-applicant incomes alongside loan amounts. On average, applicants possess a higher income, averaging around $4805.60, compared to co-applicants whose average income is approximately $1569.58. Loan amounts vary widely, averaging $134.28. ANOVA analysis underscores significant distinctions between the income and loan amounts across the groups, implying diverse financial profiles among applicants and co-applicants.

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
ApplicantIncome	367	1763655	4805.599455	24114831.09
CoapplicantIncome	367	576035	1569.577657	5448639.491
LoanAmount	367	49280	134.2779292	3964.141124

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	4202537452	2	2101268726	213.2009841	5.87569E-79	3.003920577
Within Groups	10821681107	1098	9855811.573			
Total	1502421856	1100				

Anova two factor without Replication:

The ANOVA results indicate significant variation both within rows (p = 0.441) and between columns (p < 0.001). This suggests that there are meaningful differences among the row categories and column categories in the dataset, warranting further investigation into the factors influencing these variations.

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	1004340909	365	2751618.93	1.015674698	0.440986529	1.1881716
Columns	379216841.8	1	379216841.8	139.9761235	1.47092E-27	3.867061668
Error	988841123.7	365	2709153.763			
Total	2372398875	731				

Descriptive Statistics:

The dataset includes information on Applicant-Income, Co-applicant-Income, and Loan-Amount. The largest Applicant-Income recorded is $72,529, while the smallest is $0. For Co-applicant-Income, the largest value is $24,000, and the smallest is $0. Additionally, the Loan-Amount ranges from a maximum of $550 to a minimum of $0. Confidence levels for these variables at a 95.0% level are also provided, indicating the precision of the measurements within the dataset.

Largest(1)	72529	Largest(1)	24000	Largest(1)	550
Smallest(1)	0	Smallest(1)	0	Smallest(1)	0
Confidence Level(95.0%)	504.0756067	Confidence Level(95.0%)	239.6059543	Confidence Level(95.0%)	6.462910219

Order Dataset Analysis

Introduction:

Our dataset comprises a plethora of variables, each offering unique insights into them multifaceted nature of different category sales. From fundamental transactional details such as Date, Time, sales, states to more nuanced factors like Customer Type, Demographics, category and sub category, every facet has been meticulously documented.

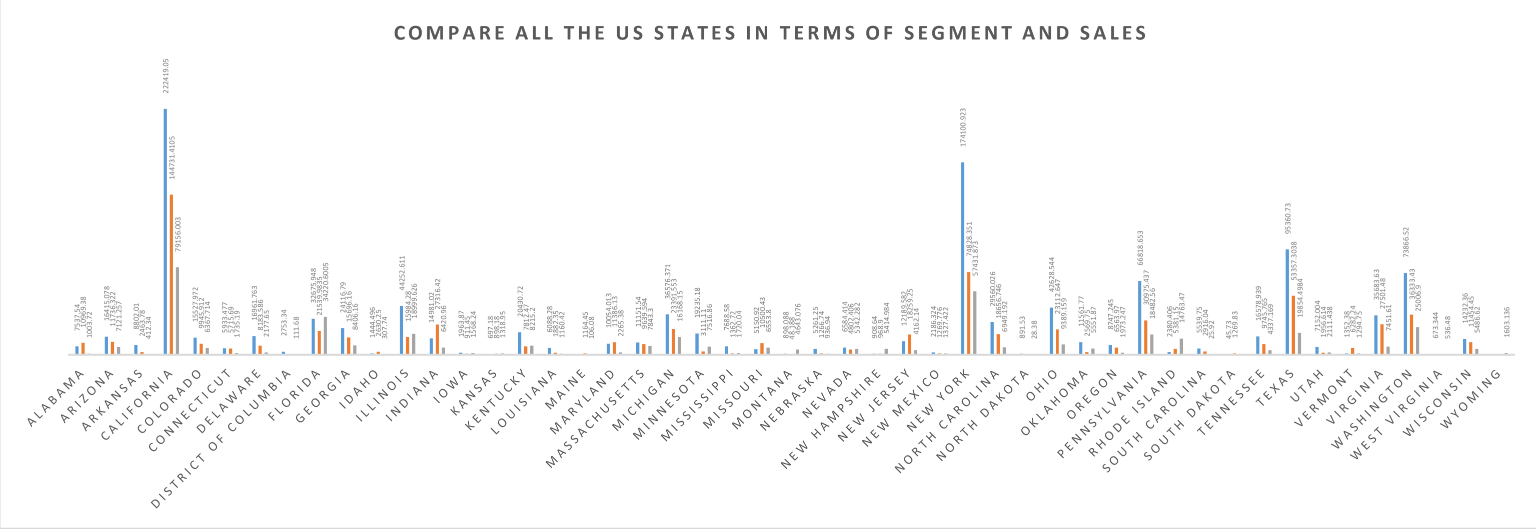
Questionnaire:

1. Compare all the US states in terms of Segment and Sales. Which Segment performed well in all the states?
2. Find out top performing category in all the states?
3. Which segment has most sales in US, California, Texas, and Washington?
4. Compare total and average sales for all different segment?
5. Compare average sales of different category and sub category of all the states.

Analytics:

1.Compare all the US states in terms of Segment and Sales. Which Segment performed well in all the states?

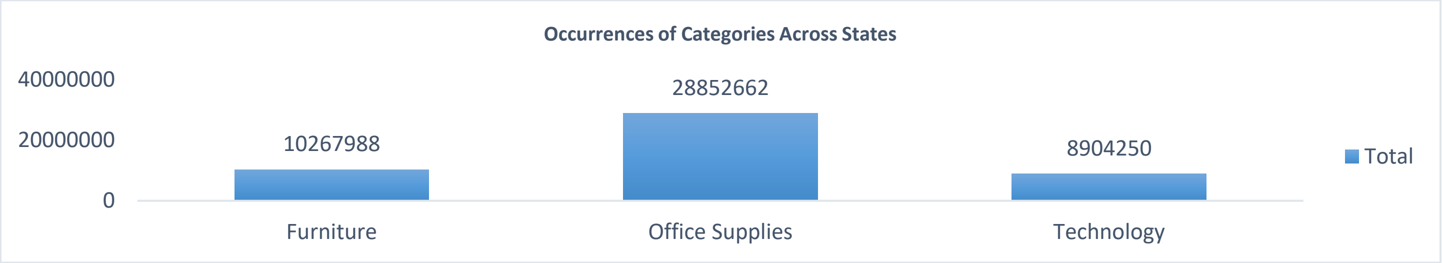
Ans



After comparing all the states in terms of segment and sales , California emerged as the state with the highest amount of sales .Consumer segment performed well in all the states

Q2. Find out top performing category in all the states?

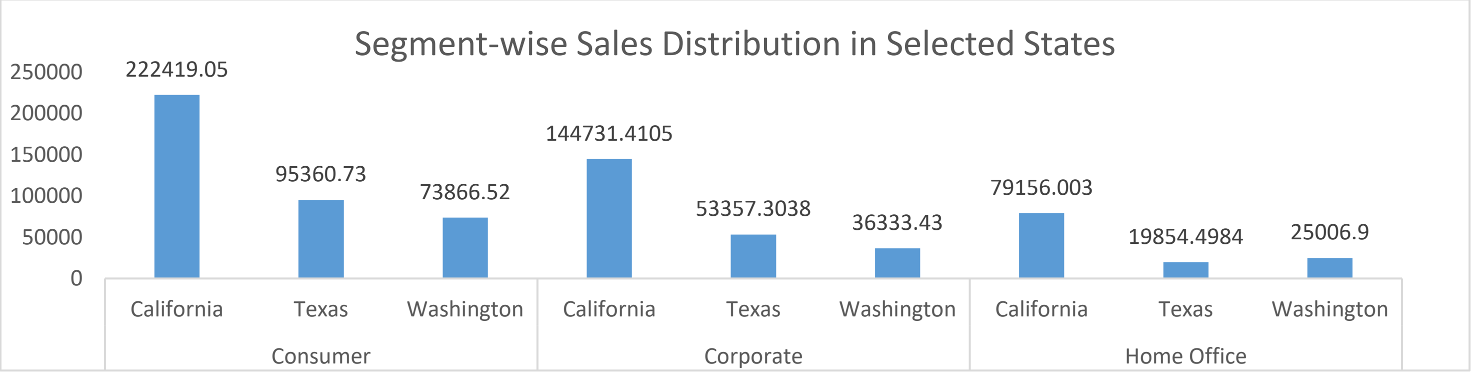
Ans



Office is the top performing category.

Q3. Which segment has most sales in US, California, Texas, and Washington?

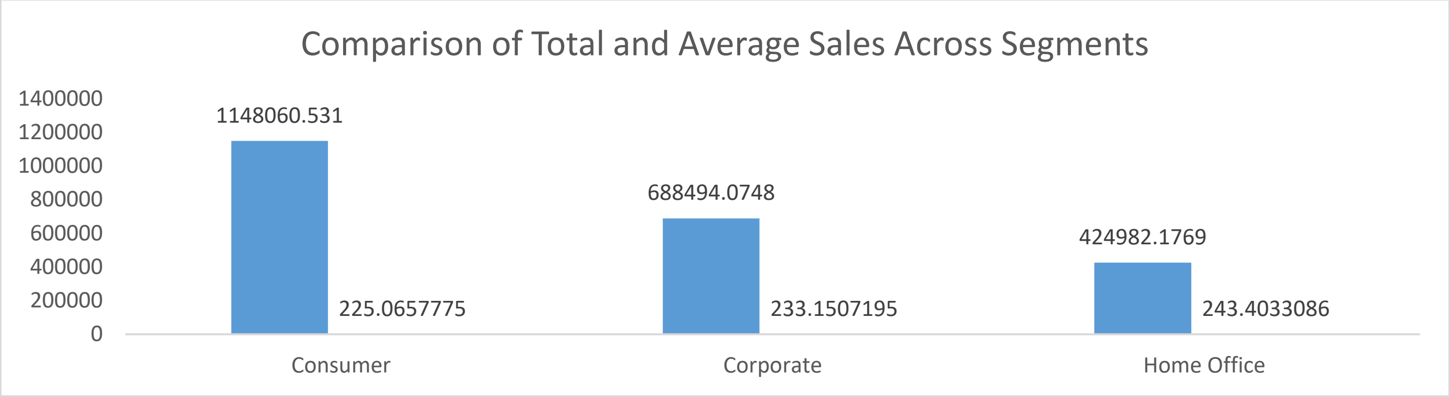
Ans



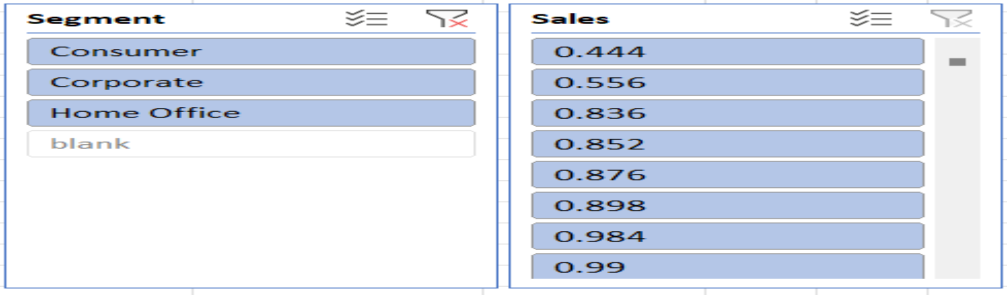
Consumer segment has the most sales in US, California, Texas, and Washington

Q4. Compare total and average sales for all different segment?

Ans



Overall, the home office segment has the highest average sales, followed by the corporate segment and then the consumer segment. However, in terms of total sales, the consumer segment has the highest, followed by the corporate segment and then the home office segment



Segment

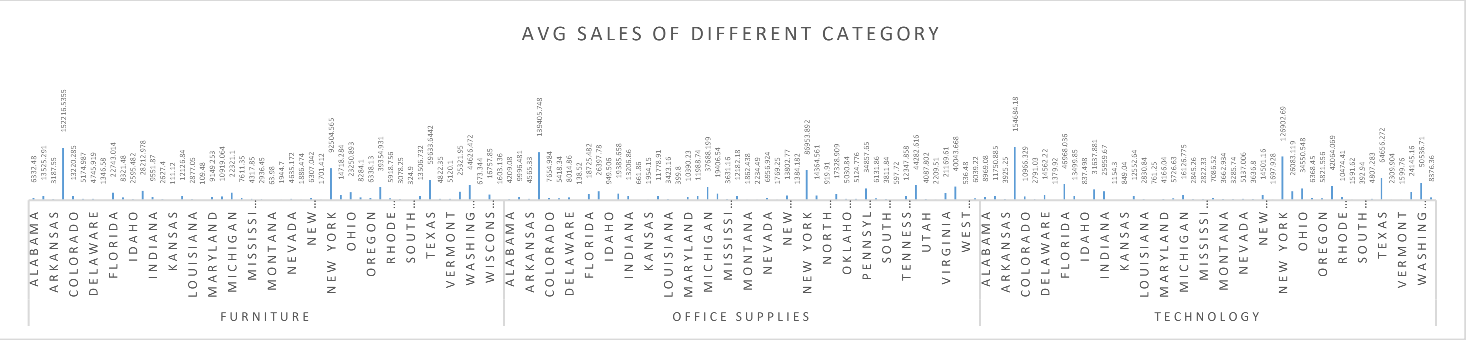
Consumer
Corporate
Home Office
blank

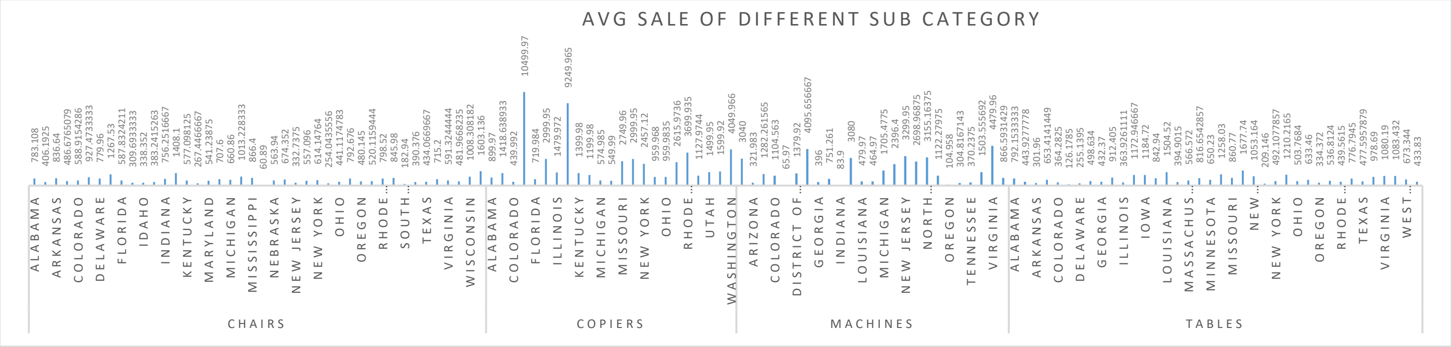
Sales

0.444
0.556
0.836
0.852
0.876
0.898
0.984
0.99

Q5. Compare average sales of different category and sub category of all the states.

Ans





The sales data for different categories within the furniture, office supplies, and technology segments paint a varied picture. On average, furniture items sell for $350.65, with bookcases leading the category at $503.60, followed by chairs at $531.83, tables at $645.89, and furnishings at $95.82. In contrast, office supplies have an average sales figure of $119.38, with appliances leading the category at $227.93, followed by storage at $263.63, supplies at $252.28, and binders at $134.07. Technology items have the highest average sales at $456.40, with copiers topping the list at $2215.88, followed by machines at $1645.55, accessories at $217.18, and phones at $374.18. These figures illustrate the diverse consumer preferences and spending patterns across these product categories.

Conclusion:-

Our comprehensive analysis of the provided dataset through various data visualization techniques has yielded valuable insights. Through the creation of bar graphs, pie charts, and other visual representations, we've been able to discern patterns, trends, and relationships within the data that might have otherwise remained obscured.

Our deep dive into the dataset has not only enhanced our understanding of the underlying information but has also empowered us to make informed decisions based on the insights gained. By visually depicting the data, we've been able to communicate complex findings in a clear and accessible manner, facilitating better comprehension and actionable strategies.

Furthermore, this process has underscored the importance of data visualization as a powerful tool for extracting meaningful information from raw data. By harnessing the visual nature of graphs and charts, we've transformed numbers and statistics into compelling narratives that drive understanding and inform decision-making.

Regression:

The regression analysis reveals a moderately strong relationship between the independent variable (cost) andthe dependent variable, with a coefficient of determination (R-squared) of 0.503. The coefficient for the costvariable is highly significant, with a t-statistic of 99.63, indicating that changes in cost significantly affect thedependent variable. However, the intercept's coefficient is not statistically significant, suggesting that its impact on the dependent variable may not be meaningful.

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.008850713			
R Square	7.83351E-05			
Adjusted R Square	-0.000924595			
Standard Error	596.4161586			
Observations	999			
ANOVA				
	Df	*SS*	*MS*	*F*
Regression	1	27783.3433	27783.3433	0.078106235
Residual	997	354645097.6	355712.2343	
Total	998	354672880.9		
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	232.3779806	37.2042048	6.246013907	6.22491E-10
Postal Code	0.000167458	0.000599189	0.279474927	0.779938343

Correlation:

The correlation matrix indicates a strong positive correlation of 0.71 between sales and cost, suggesting that as the cost increases, sales tend to increase as well. This correlation coefficient reflects a moderately strong linear relationship between the two variables. Both sales and cost exhibit mutual influence on each other

Sales	*cost*
1	0.709412
0.709412	1

Descriptive Statistics:

The data on sales reveals a wide variation, with a mean value of $230.77 and a significant standard deviation of $626.65, indicating a diverse range of sales figures. The skewness of 12.98 suggests a pronounced asymmetry in the distribution, potentially indicating outliers or skewed data points. With a maximum sales value of $22,638.48 and a minimum of $0.44, the range illustrates the considerable spreadin sales amounts within the dataset**.**

Sales	
Mean	230.7691
Standard Error	6.33014
Median	54.49
Mode	12.96
Standard Deviation	626.6519
Sample Variance	392692.6
Kurtosis	304.4451
Skewness	12.98348
Range	22638.04
Minimum	0.444
Maximum	22638.48
Sum	2261537
Count	9800

Shop Sales Data Report

Introduction:

This dataset encapsulates a wealth of information regarding sales transactions, providing valuable insights into the dynamics of retail operations. With columns meticulously crafted to capture key facets of each transaction, including Date, Salesman, Item Name, Company, Quantity, and Amount, analysts and businesses alike gain access to a treasure trove of actionable data.

Whether it's uncovering trends, optimizing inventory management, or refining sales strategies, this dataset serves as an invaluable resource for driving informed decision-making and unlocking new avenues for growth.

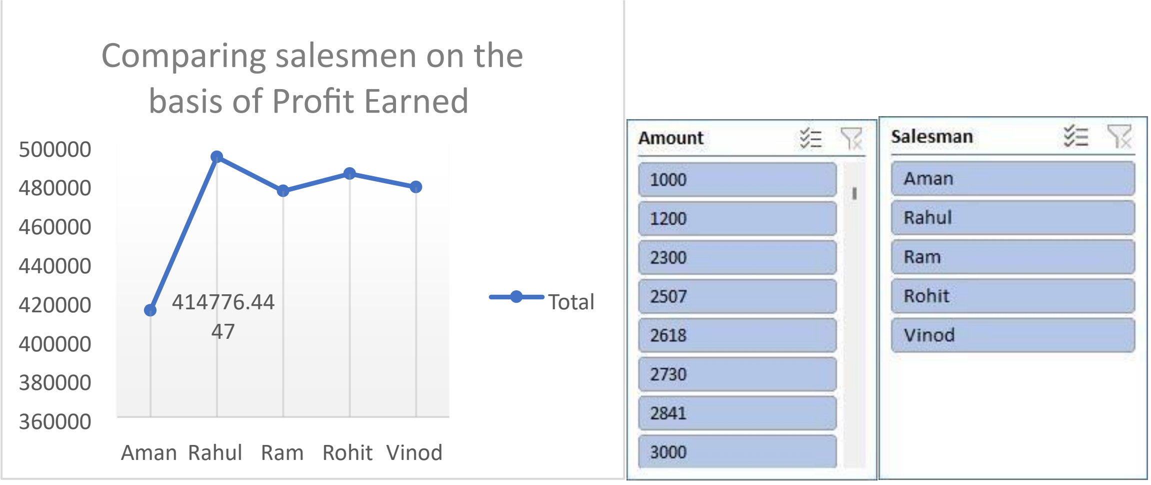
Questionnaire:

Q1. Compare all the salesmen on the basis of profit earn.
Q2. Find out most sold product over the period of May-September.
Q3. Find out which of the two product sold the most over the year Computer or Laptop?
Q4. Which item yield most average profit?
Q5. Find out average sales of all the products and compare them.

Analytics:

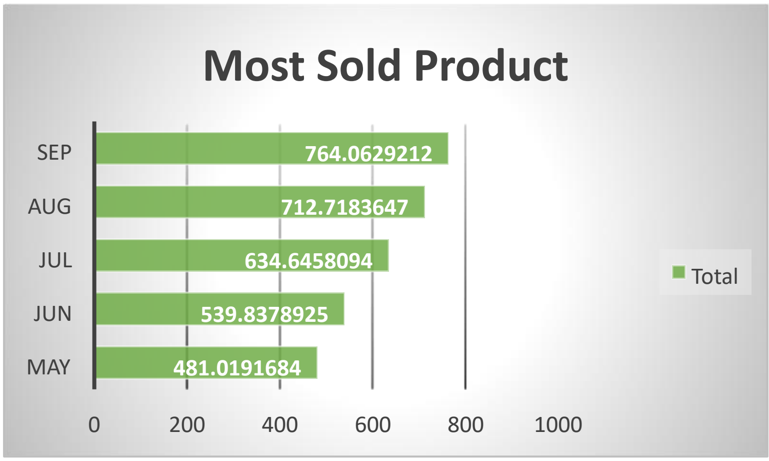
Q1. Compare all the salesmen on the basis of profit earn.

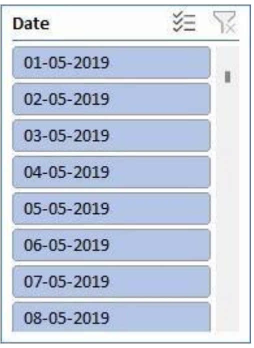
Ans:- The comparison of all the salesmen on the basis of profit earned is given below:



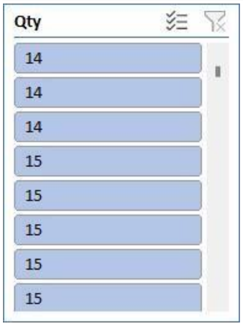
Q2. Find out most sold product over the period of May-September.

Ans:- To identify the most sold product over the period of May-September, we would need to analyse the sales data within this timeframe. By aggregating the quantity sold for each product across all transactions during this period and then determining which product has the highest total quantity sold, we can pinpoint the most popular item.

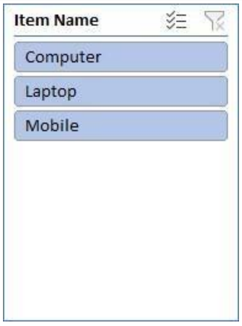



Date

01-05-2019
02-05-2019
03-05-2019
04-05-2019
05-05-2019
06-05-2019
07-05-2019
08-05-2019


Qty

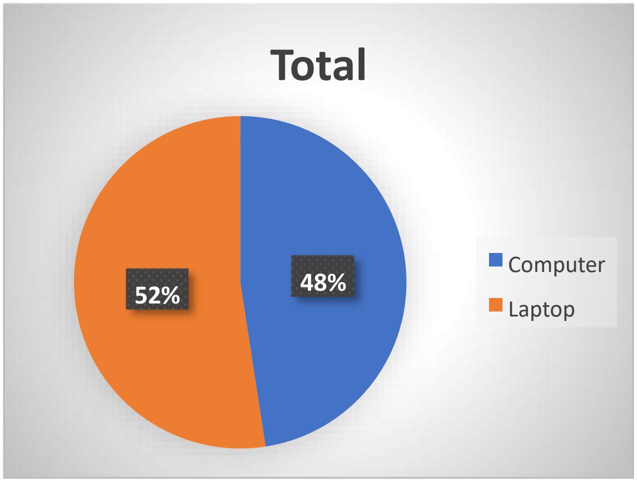
14
14
14
15
15
15
15
15

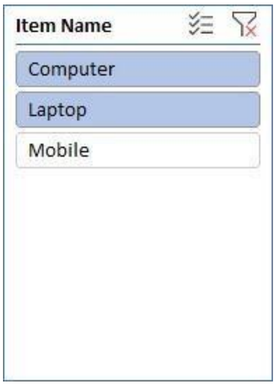

Item Name

Computer
Laptop
Mobile

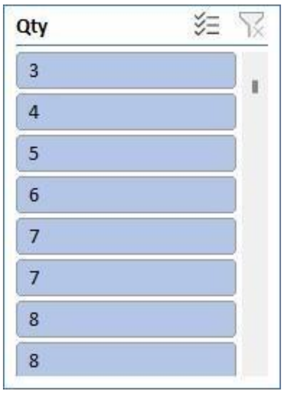
Q3. Find out which of the two product sold the most over the year Computer or Laptop?

Ans:- The two product sold the most over the year between computer or laptop :




Item Name

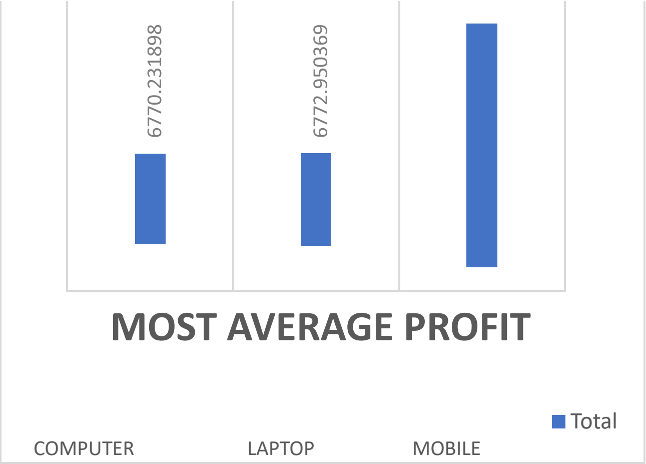
Computer
Laptop
Mobile

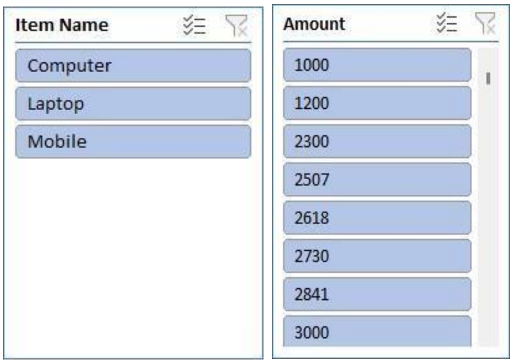

Qty

3
4
5
6
7
7
8
8

Q4 . Which item yield most average profit?

Ans:- The item that yields the most profit between laptop, computer and mobile is :





Item Name

Computer

Laptop

Mobile

Amount

1000

1200

2300

2507

2618

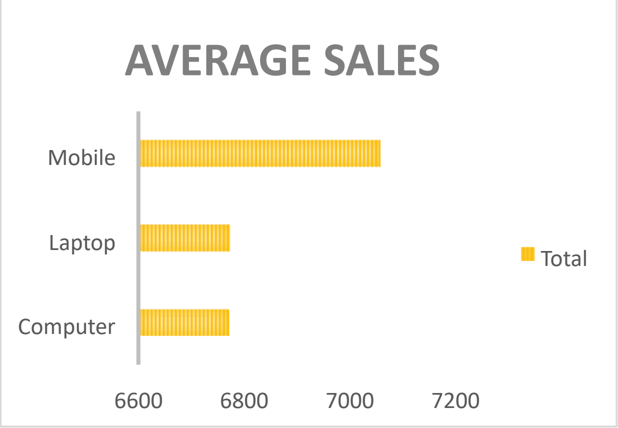
2730

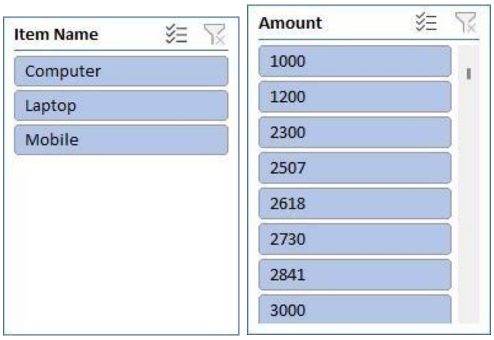
2841

3000

Q5. Find out average sales of all the products and compare them.

Ans:- The average sales of all the products with their respective comparison is :





Item Name

Computer

Laptop

Mobile

Amount

1000

1200

2300

2507

2618

2730

2841

3000

Conclusion and Review :

The shop sales dataset offers insights into sales trends, salesman performance, item popularity, and company performance. Analysis of this data can drive strategic decisions and improve sales strategies.

The dataset is well-structured and provides comprehensive information on sales transactions. It allows for various analyses, but could benefit from additional variables for deeper insights. Overall, it's a valuable resource for understanding sales dynamics and informing business decisions.

Regression:

The regression model, with a significant p-value indicates a strong positive relationship between Amount and the profit earned and the outcome variable. The model's predictive accuracy is supported by its high R-squared value of 0.660.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.812617
R Square	0.660347
Adjusted R Square	0.629469
Standard Error	1215.119
Observations	13

		SS	*MS*	*F*	*Significance F*
					0.000753
ANOVA		*df*			
Regression	1	31576697	31576697	21.38598	
Residual	11	16241653	14776514		
Total	12	47818350			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	244.7062	754.0557	0.32452	0.751632	-1414.96	1904.372
X Variable	0.190729	0.041243	4.624498	0.000735	0.099954	0.281505

Co-relation:

The correlation coefficient between units sold and revenue is 0.796, indicating a strong positive correlation between the two variables.

	Qty	*Amount*
Column 1	1	
Column 2	#DIV/0!	1

Anova (Single Factor) :

The ANOVA results indicate a significant difference between the two groups , with 1 degree of freedom.

SUMMARY

Groups	Count	Sum	Average	Variance
Column 1	15	78.56643	5.237762	2.766871
Column 2	15	50419.05	3361.27	3416099

ANNOVA

Source of Variance	SS	df	MS	F	P-Value	F crit
Between Group	84472135	1	84472135	49.45528	1.2E-07	4.195972
Without Group	47825420	28	170851			
Total	1.32E+08	29				

Anova two factor with Replication:

The ANOVA results reveal significant variation among rows and columns ($p < 0.001$), with degrees of freedom (df) values of 10 respectively. The error term has a degree of freedom of 0

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	841600745	10	4160074	65535	#NUM!	#NUM!
Columns	0	0	65535	65535	#NUM!	#NUM!
Error	0	0	65535			
Total	41600745	10				

Anova two factor without Replication:

Summary	Count	Sum	Average	Variance		
4	*1*	*7800*	*7800*	*#DIV/0!*		
5	*1*	*3000*	*3000*	*#DIV/0!*		
4	1	2300	2300	*#DIV/0!*		
3	1	7000	7000	*#DIV/0!*		
3	1	1200	1200	*#DIV/0!*		
4	1	2506.667	2506.667	*#DIV/0!*		
5	1	2618.095	2618.095	*#DIV/0!*		
6	1	2729.524	2729.524	*#DIV/0!*		
7	1	2840.952	2840.952	*#DIV/0!*		
6	1	4500	4500	*#DIV/0!*		
7	1	3063.81	3063.81	*#DIV/0!*		
1000		39559.05	3596.277	4160074		

Descriptive Statistics:

Column1	
Mean	1000
Standard Error	0
Median	1000
Mode	#N/A
Standard Deviation	#DIV/0!
Sample Variance	#DIV/0!
Kurtosis	#DIV/0!
Skewness	#DIV/0!
Range	0
Minimum	1000
Maximum	1000
Sum	1000
Count	1

Store Data Analysis

Introduction: This dataset contains sales data from a retail store, covering various details like customer information (such as gender and age group), transaction specifics (like order ID and status), and product details (such as category and SKU). Our goal in analyzing thisdata is to understand how customers behave and what products are popular. By doing this, we can find patterns, preferences, and connections within the data. These insights can then be used by businesses to improve how they market products, manage their inventory more effectively, and make sure customers are happy with their shopping experience.

Questionnaires :

Q1. Which of the channel performed better than all other channels incompare men & women?

Q2. Compare category. Find out most sold category above 23 years of age for any gender.Q

Q3. Compare Maharashtra, Rajasthan and Tamil Nadu on the basis quantity, most items

purchased by men and women and profit earn.

Q4. Which city sold most of following categories:

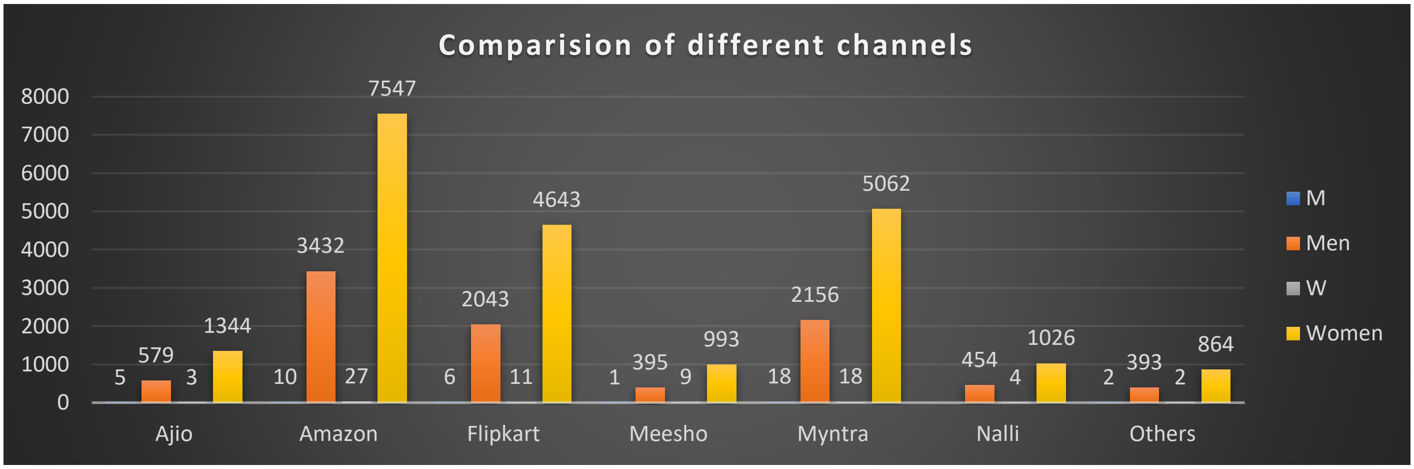
a. kurta b. set c. western wears.

5.In which month most items sold in any of the state on the basis of category

Analytics :

1.Which of the channel performed better than all other channels incompare men & women?

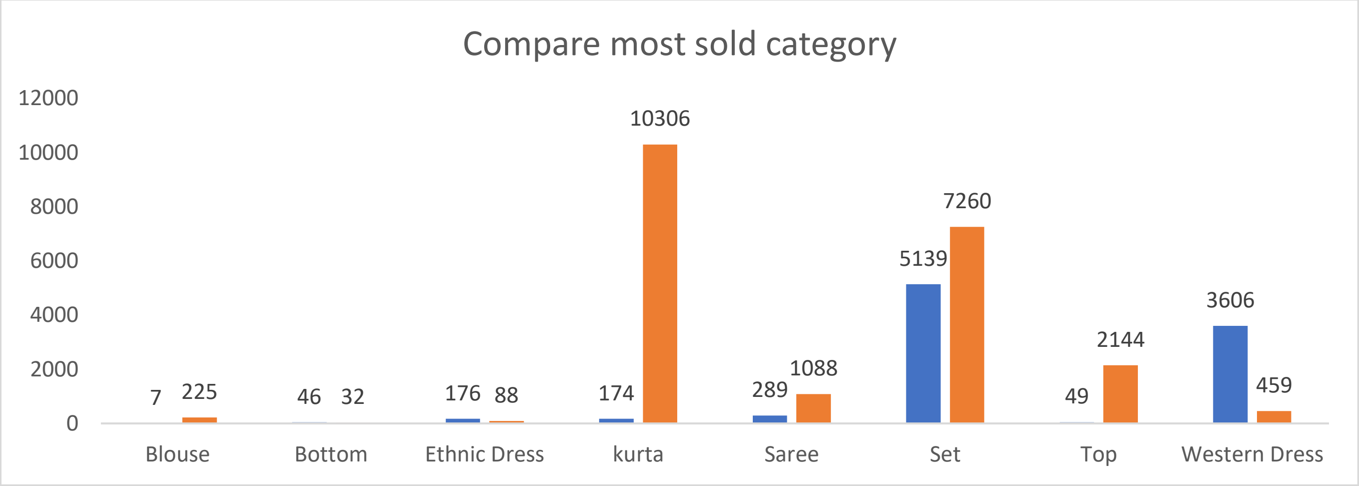
Ans



Amazon is the top seller for both men and women, with Myntra and Flipkart following closely behind. Specifically, Amazon sold nearly 3,500 units in the men's category and almost7,500 units in the women's category. Myntra, on the other hand, sold 2,000 units in the men's section.

2.Compare category. Find out most sold category above 23 years of age for any gender.

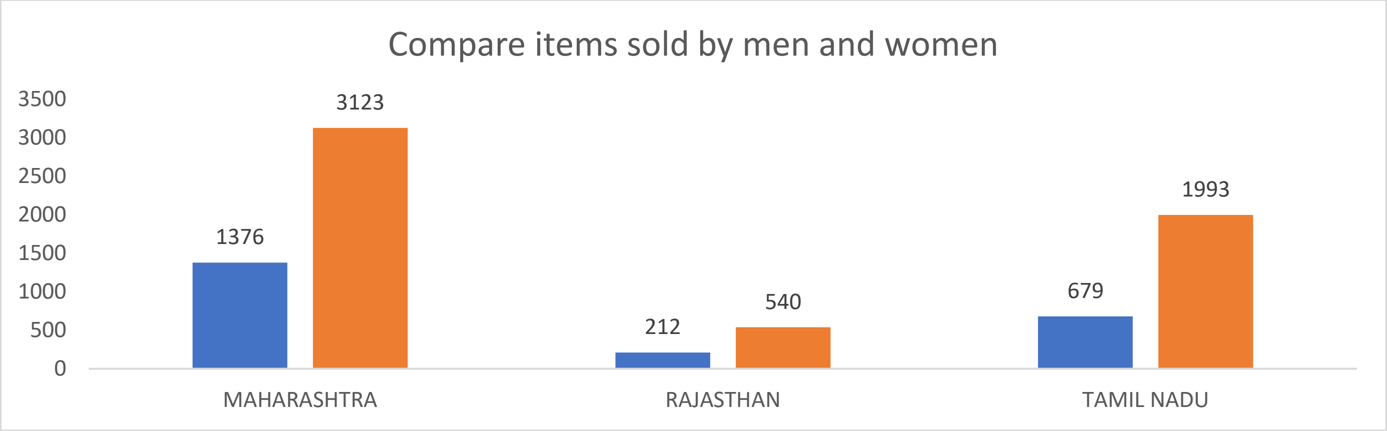
Ans



In the women's section, the most popular category among customers aged 23 years and above is Kurta, with a remarkable 8,820 units sold. Meanwhile, in the men's section, the top- selling category is Set, which saw 4,365 units sold. Interestingly, Set also ranks as the second most popular category in the women's section, indicating its broad appeal across genders.

3.Compare Maharashtra, Rajasthan and Tamil Nadu on the basis quantity,most items purchased by men and women and profit earn.

Ans:-

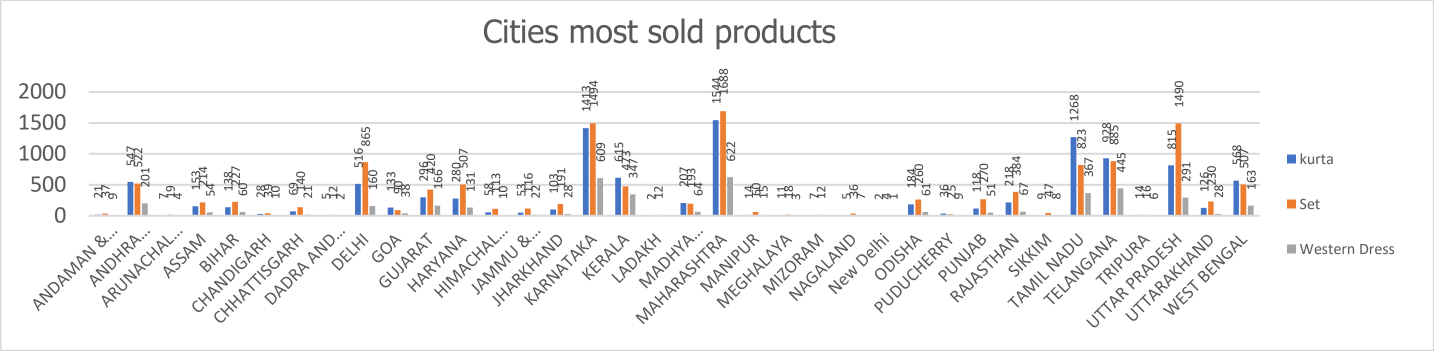


In Maharashtra, sales data indicates that the men's categorysaw a total of 1,390 units sold, while the women's category recorded a significantly higher figure of 3,144 units sold. Moving on to Tamil Nadu, sales in the men's category amounted to 686 units, with the women'scategory showing a stronger performance at 2,023 units sold. Finally, in Rajasthan, sales werecomparatively lower, with only 21 units sold in the men's category and 543 units in the women'scategory. These figures offer insights into regional sales trends, highlighting the varying consumer preferences across different states.

4.Which city sold most of following categories:

a. kurta b. set c. western wears.

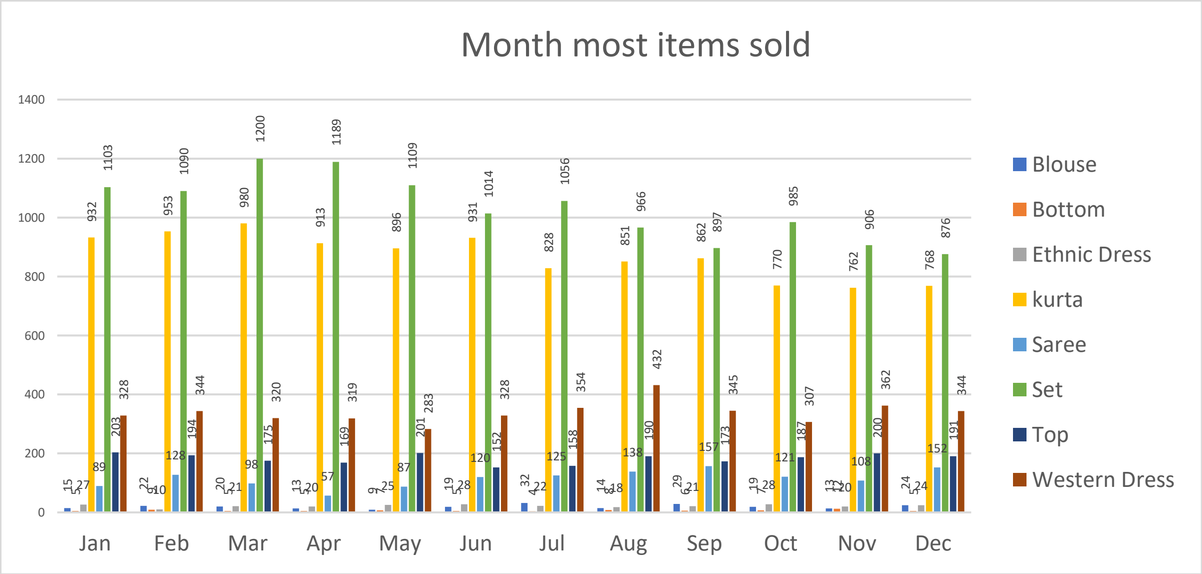
Ans



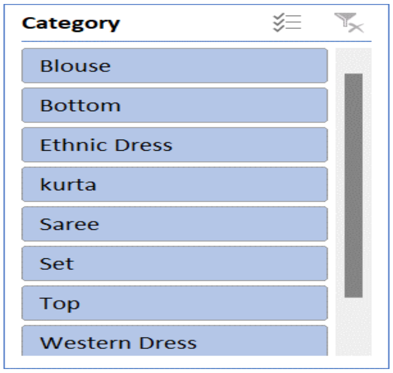
Bengaluru, Chennai, Hyderabad, Mumbai, and New Delhi stand out as the top cities forKurta, Set, and Western wear sales. These urban centers consistently show the highest demandfor these clothing categories compared to other cities, indicating strong consumer preferencesfor traditional and contemporary styles.

5.In which month most items sold in any of the state on the basis of category

Ans.

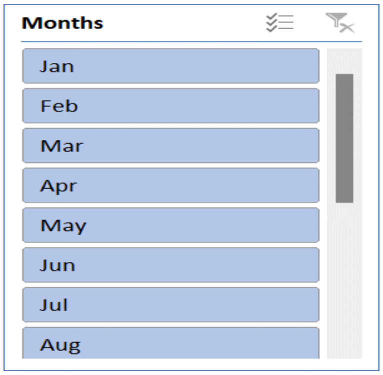


The most sold items in the month is shown above in the graph . Set is the most sold item in all the months.



Category

- Blouse
- Bottom
- Ethnic Dress
- kurta
- Saree
- Set
- Top
- Western Dress



Months

- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug

Conclusion and Review :

In conclusion, this dataset offers a comprehensive view of sales data from a retail store, encompassing customer demographics, transaction details, and product specifics. Our analysisaims to uncover insights into customer behavior and product popularity, with the goal of identifying patterns, preferences, and connections within the data. By leveraging these insights,businesses can refine their marketing strategies, optimize inventory management practices, andenhance the overall shopping experience for customers. Ultimately, understanding customer behavior and product trends enables businesses to make informed decisions that drive sales growth and foster customer satisfaction.

Sales Data Report

Introduction:

In the realm of business analytics, a dataset encompassing sales transactions emerges as a vital asset for deriving actionable insights. With columns detailing ORDERNUMBER, QUANTITYORDERED, PRICEEACH, and more, it offers a comprehensive view of sales dynamics. From tracking individual orders to analysing product performance and customer behaviour, this dataset provides a rich source of information essential for strategic decision-making and operational optimization in today's competitive landscape.

Questionaries:

Q1. Compare the sale of Vintage cars and Classic cars for all the countries.

Q2. Find out average sales of all the products? which product yield most sale?

Q3. Which country yields most of the profit for Motorcycles, Trucks and buses?

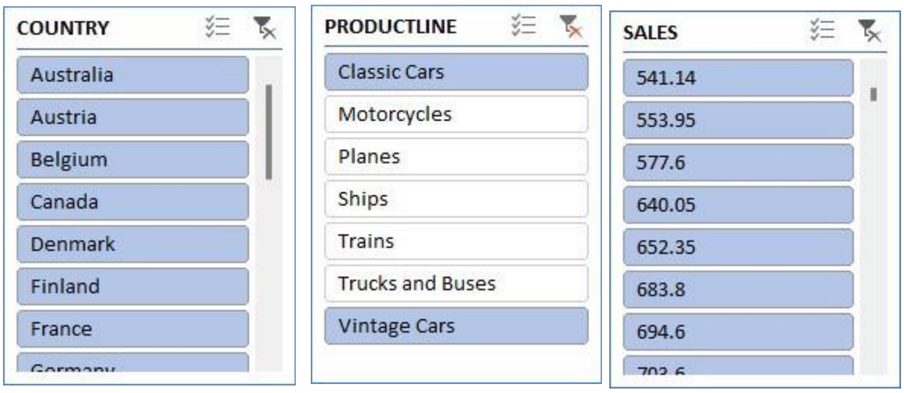
Q4. Compare sales of all the items for the years of 2004, 2005.

Q5. Compare all the countries based on deal size.

Analytics:

Q1. Compare the sale of Vintage cars and Classic cars for all the countries.

Ans:-



COUNTRY

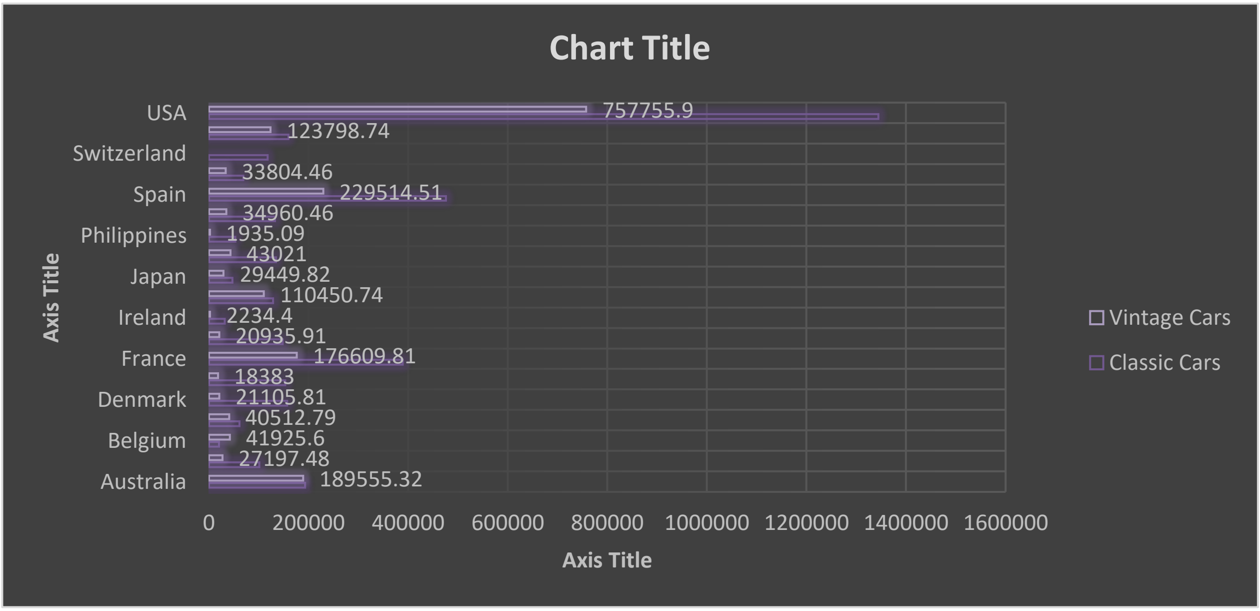
- Australia
- Austria
- Belgium
- Canada
- Denmark
- Finland
- France
- Germany

PRODUCTLINE

- Classic Cars
- Motorcycles
- Planes
- Ships
- Trains
- Trucks and Buses
- Vintage Cars

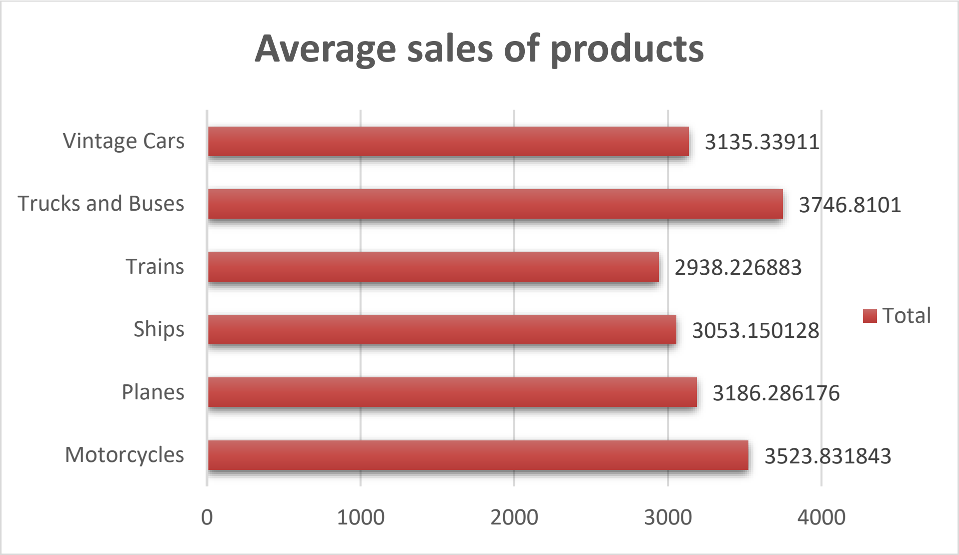
SALES

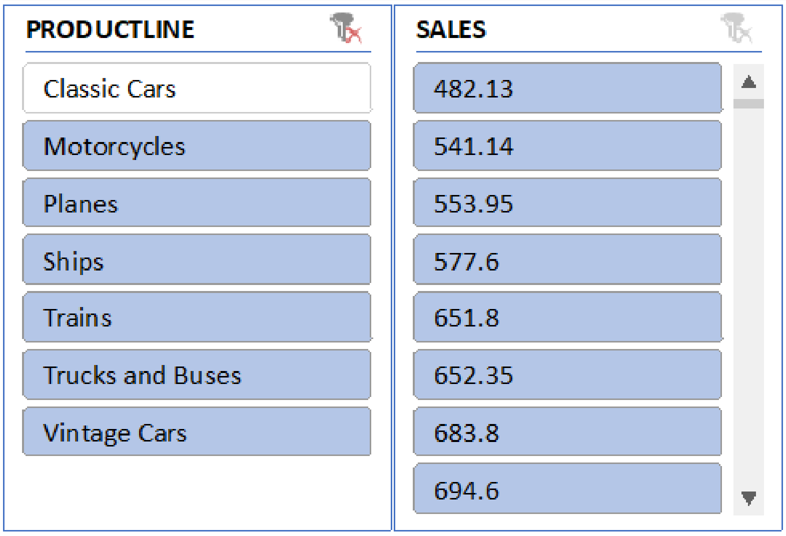
- 541.14
- 553.95
- 577.6
- 640.05
- 652.35
- 683.8
- 694.6
- 703.6



Q2. Find out average sales of all the products? which product yield most sale?

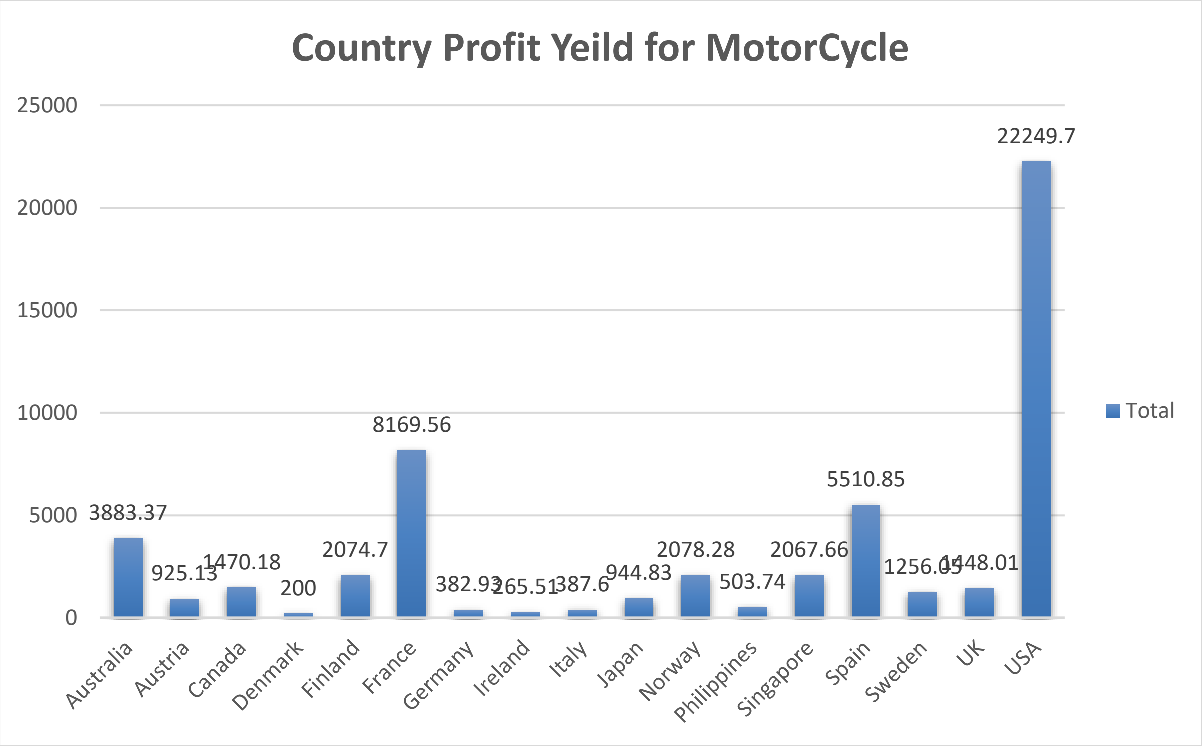
Ans:





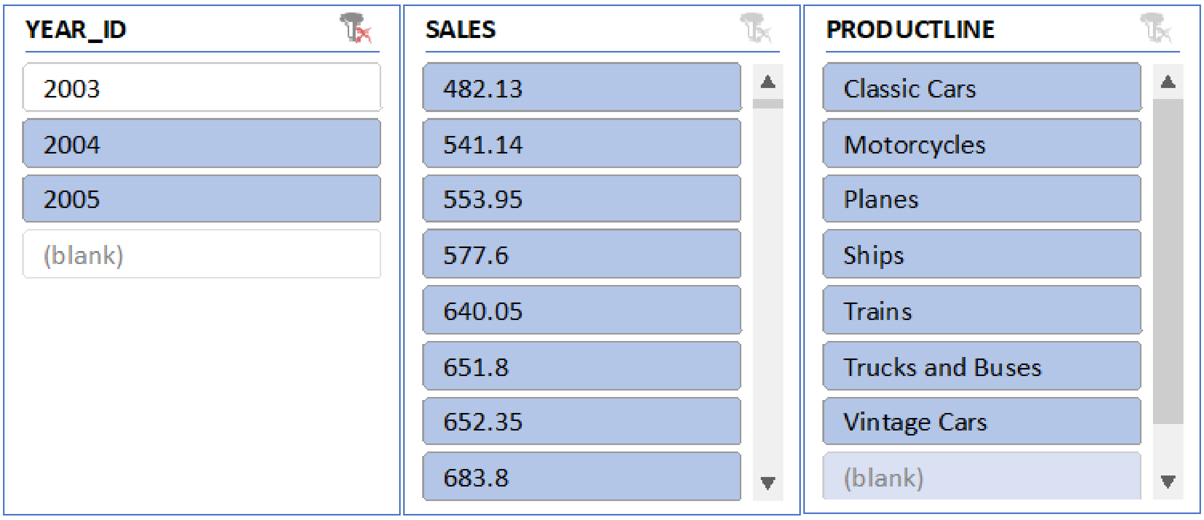
Q3. Which country yields most of the profit for Motorcycles, Trucks and buses?

Ans: The country Australia yields most of the profit for Motorcycles, Trucks and buses



Q4. Compare sales of all the items for the years of 2004, 2005.

Ans: -



YEAR_ID

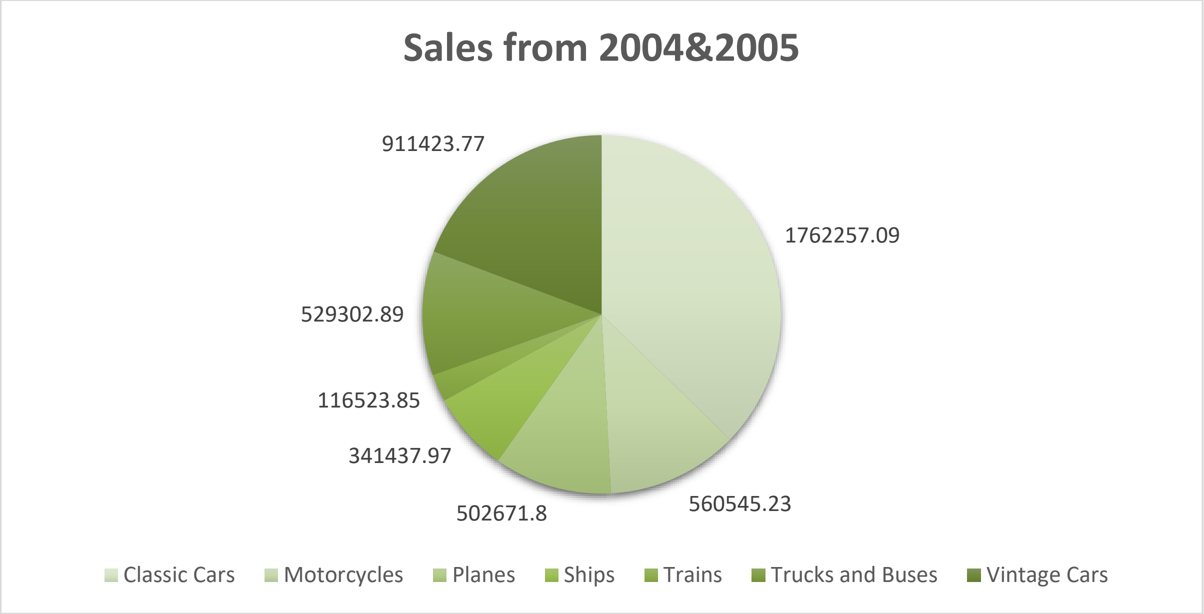
2003
2004
2005
(blank)

SALES

482.13
541.14
553.95
577.6
640.05
651.8
652.35
683.8

PRODUCTLINE

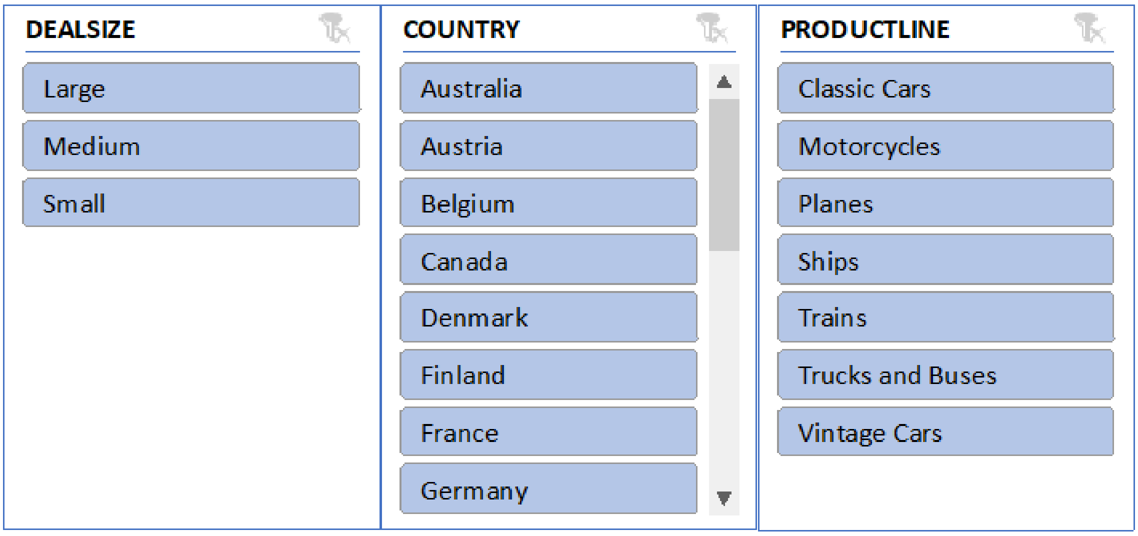
Classic Cars
Motorcycles
Planes
Ships
Trains
Trucks and Buses
Vintage Cars
(blank)

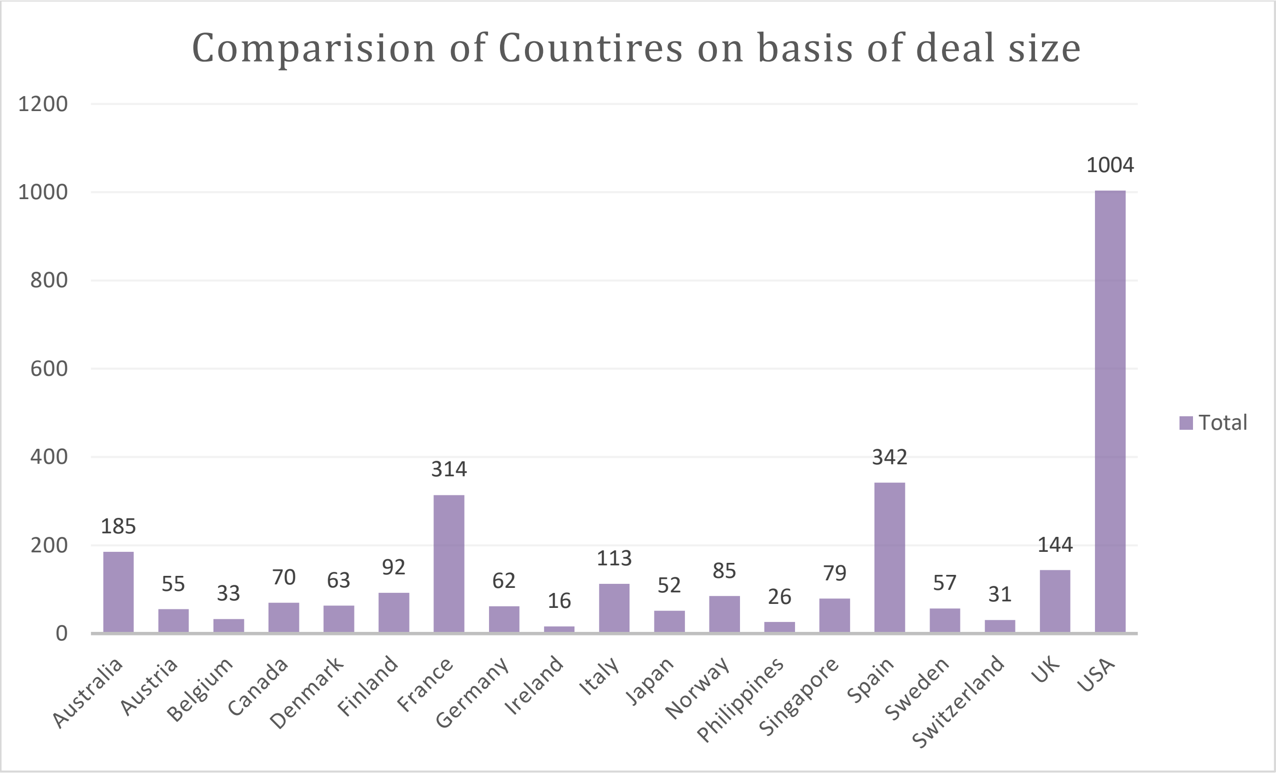


The following is the sales of all the items for the years of 2004, 2005 and as graph represents the sales has grown down from 20024 to 2005.

Q5. Compare all the countries based on deal size.

Ans.




Comparision of Countires on basis of deal size

The comparison of all the countries based on deal size are:

Regression and Anova:

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.657840928					
R Square	0.432754687					
Adjusted R Square	0.432553607					
Standard Error	1387.45926					
Observations	2823					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	1	4142995200	4142995200	2152.157001	0	
Residual	2821	5430546866	1925043.199			
Total	2822	9573542065				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-1470.590019	111.4099971	-13.19980305	1.20143E-38	-1689.043329	-1252.13
PRICE EACH	60.05936566	1.294624334	46.39134619	0	57.52085944	62.59787188

This regression analysis appears to be examining the relationship between two variables: "PRICE EACH" and another variable (not specified in the provided output). Here are the results:

1. **Regression Equation:** The regression equation can be written as: Y=−1470.59 (PRICE EACH)+60.06where:
   - *Y* represents the dependent variable Quantity.
   - *X* represents the independent variable "PRICE EACH".
2. **Interpretation of Coefficients:**
   - The intercept coefficient (-1470.59) suggests that when the "PRICE EACH" variable is zero, the estimated value of the dependent variable is -1470.59. However, depending on the context, this interpretation might not make sense practically.
   - The coefficient for "PRICE EACH" (60.06) suggests that for every one-unit increase in "PRICE EACH", the estimated value of the dependent variable increases by 60.06 units.
3. **Statistical Significance:**

- The p-value associated with the coefficient for "PRICE EACH" is 00, indicating that the coefficient is statistically significant at conventional levels of significance (typically �=0.05α=0.05).
- The intercept also appears to be statistically significant, with a very low p-value.

4. **Goodness of Fit:**
    - The R-squared value (0.433) indicates that approximately 43.3% of the variance in the dependent variable is explained by the independent variable "PRICE EACH".
    - The adjusted R-squared value (0.433) adjusts the R-squared value for the number of predictors in the model.
5. **ANOVA:**
    - The ANOVA table indicates that the regression model as a whole is statistically significant, as the p-value associated with the F-statistic is 00.
6. **Standard Error:**
    - The standard error (1387.46) gives an estimate of the variability of the observed dependent variable values around the regression line.
7. **Observations:**
    - The analysis is based on a sample of 2823 observations.

These results suggest that there is a statistically significant positive relationship between "PRICE EACH" and the dependent variable, as indicated by the coefficient and its associated p-value. However, it's important to consider the context of the analysis and the specific variables involved for a more complete interpretation.

Coorelation:

The correlation coefficient you calculated (0.657840928) represents the strength. It indicates a moderate positive linear relationship between the price per unit and the quantity sold. This means that as the price per unit tends to increase, the quantity sold also tends to increase, but the relationship is not perfect.

Descriptive Statistics:

SALES	
Mean	3553.889072
Standard Error	34.66589212
Median	3184.8
Mode	3003
Standard Deviation	1841.865106
Sample Variance	3392467.068
Kurtosis	1.792676469
Skewness	1.161076001

Range	13600.67
Minimum	482.13
Maximum	14082.8
Sum	10032628.85
Count	2823

Conclusion and Review:

In conclusion, the analysis of the provided sales dataset offers a window into the intricacies of business operations, shedding light on customer preferences, product performance, and market trends. By leveraging the insights gleaned from this dataset, businesses can make informed decisions, streamline processes, and drive growth. As the landscape of data analytics continues to evolve, harnessing the power of such datasets remains instrumental in staying competitive and responsive to the ever-changing demands of the market.

Supermarket Sales Dataset Analysis

Introduction:

Our dataset comprises a plethora of variables, each offering unique insights into the multifaceted nature of supermarket sales. From fundamental transactional details such as Invoice ID, Date, Time, and Payment Method to more nuanced factors like Branch Location, Customer Type, Gender Demographics, Product Line, and Product Ratings, every facet has been meticulously documented.

Questionnaire:

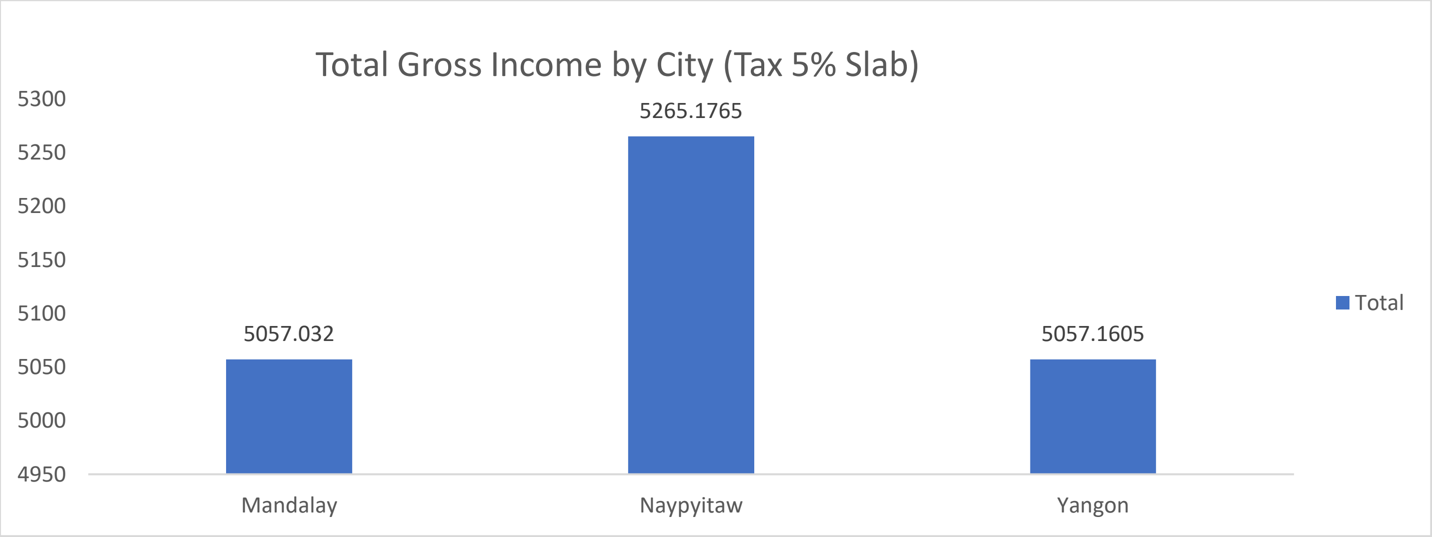
Q1. Which of the given cities having tax 5% slab performed better than all the others?
Q2. Which customer gender ordered most items from all the three branches?
Q3. Compare highest and lowest rating products on the basis of units sold.
Q4. Analyzing units sold and unit price data answer the following sub questions

a) What is the degree of freedom?
b) Co-relation of Unit price and revenue generated
c) What result you can draw from regression of the two data

Q5. What product will you suggest as per the city data analysis to each type of customer?

Analytics:

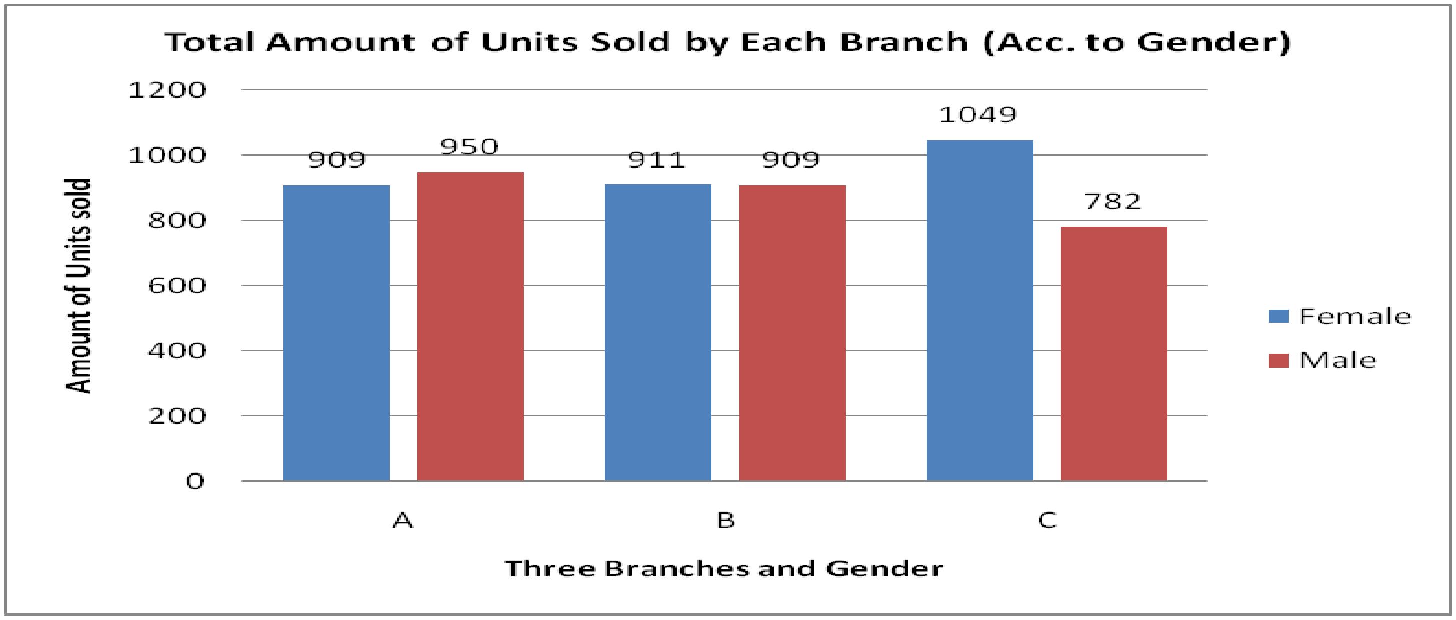
Q1. Which of the given cities having tax 5% slab performed better than all the others?
Ans



Based on the data analysed, the city that outperformed all is **Mandalay**. This conclusion is drawn from superior performance in total sales/revenue generation compared to the other cities in the same tax slab of 5%.

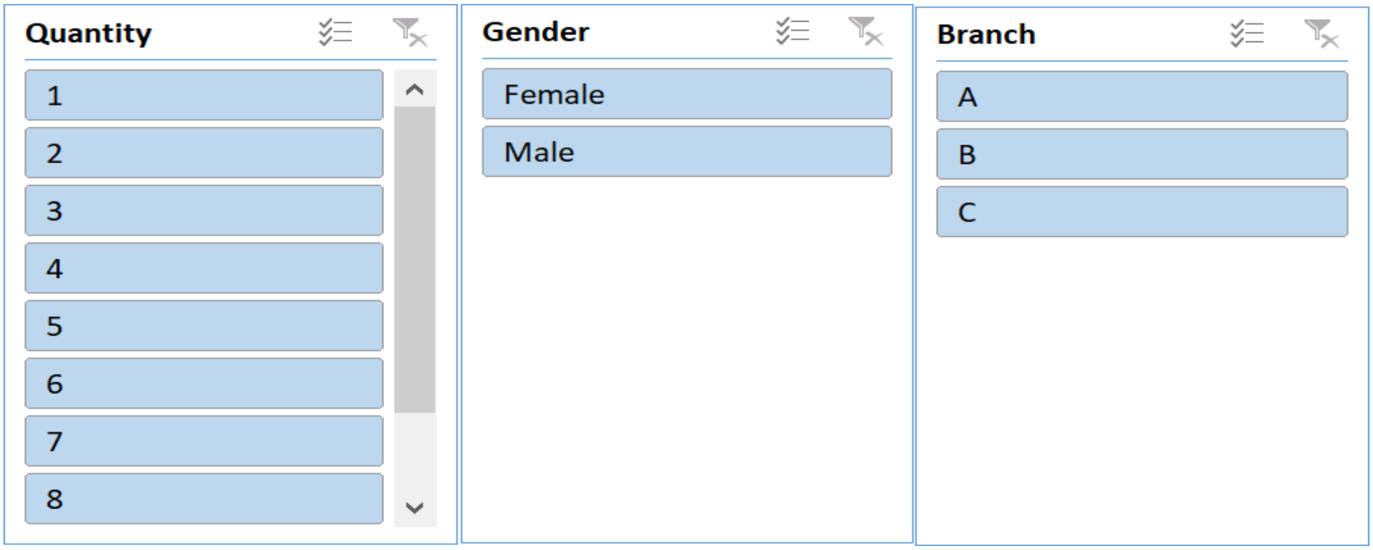
Q2. Which customer gender ordered most items from all the three branches?

Ans.

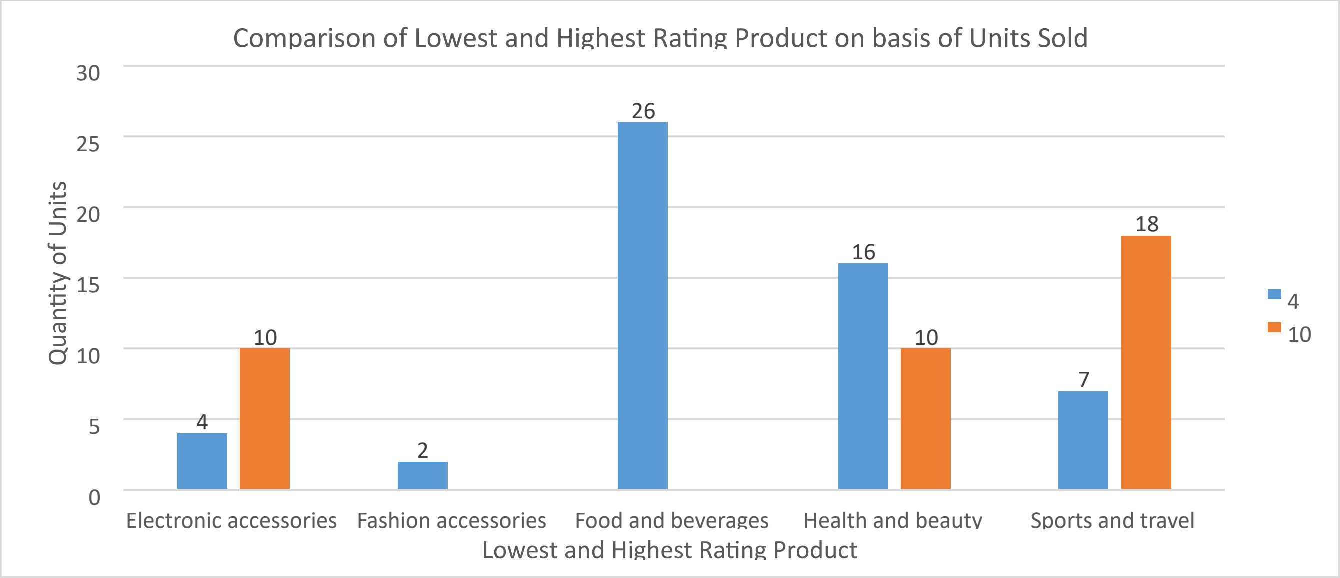


Our analysis of the Supermarket Sales Data revealed the following:

a. At Branch A, females placed the highest number of orders.
b. Branch B saw higher number of orders placed by Females
c. Meanwhile, at Branch C, males placed the most orders.



Q3. Compare highest and lowest rating products on the basis of units sold.
Ans.



Upon analysing the Supermarket Sales Data, we discovered that product ratings ranged from a minimum of 4 to a maximum of 10.

a) Electronic Accessories with higher ratings garnered more customer purchases, indicating a preference for quality in this category.
b) Fashion accessories and food and beverages mainly comprised lower-rated products in customer purchases.
c) Health and beauty products also leaned towards lower-rated items in customer preferences.
d) However, in the Sports and Travel category, customers showed a tendency to purchase higher-rated products.

Q4. Analysing units sold and unit price data answer the following sub questions

a) **What is the degree of freedom?**
b) **Co-relation of Unit price and revenue generated**
c) **What result you can draw from regression of the two data**

Ans.

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.010777564					
R Square	0.000116156					
Adjusted R Square	-0.000885732					
Standard Error	2.924724997					
Observations	1000					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	1	0.9917274	0.991727	0.115937	0.733555221	
Residual	998	8536.908273	8.554016			
Total	999	8537.9				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	5.443794599	0.215314544	25.28299	2.1E-109	5.021273429	5.86631577
Unit price	0.001189202	0.003492565	0.340495	0.733555	-0.005664411	0.008042815

a. The degree of freedom of the analysed data is 1.
b. The correlation between unit price and generated revenue was found to be 0.63392, indicating a moderate positive relationship. The analysis focused on the columns of unit price and total revenue, employing the CORREL function.
c. Upon examining the regression results, we aimed to discern the relationship between quantity and unit price, exploring how customers' purchasing quantity correlates with the unit price of a product.

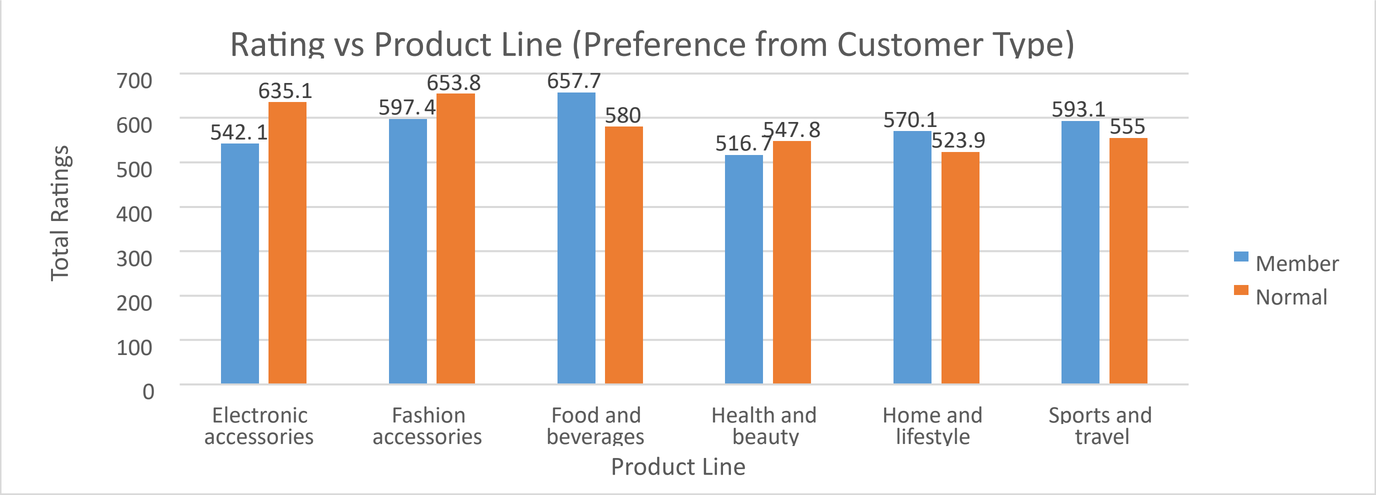
However, from the regression analysis, it's evident that the observed trend lacks consistency. The expected outcomes derived from the trend deviate significantly from the actual outcomes.

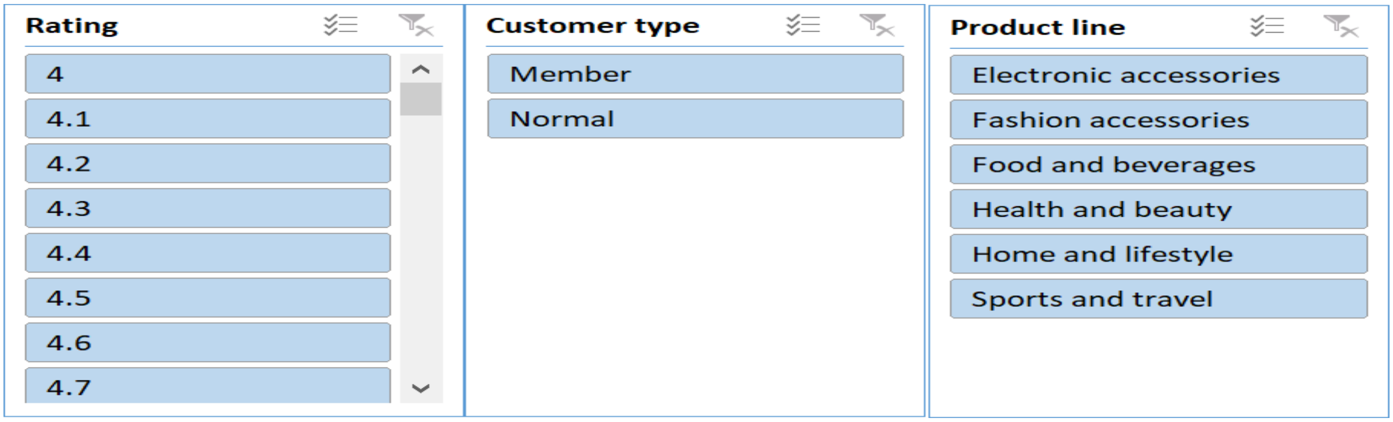
With a degree of freedom of 1, the trendline equation stands as

Quantity = 0.0012x + 5.4438. Despite this equation, the coefficient of determination (R2) is merely 0.0001, highlighting the inconsistency in customer buying patterns solely based on unit price.

Q5.What product will you suggest as per the city data analysis to each type of customer

Ans. As per the city Data Analysis, **Food and Beverages** will be a good option for **Member** type customer and **Fashion Accessories** for **Normal** type of customers.





Rating

- 4
- 4.1
- 4.2
- 4.3
- 4.4
- 4.5
- 4.6
- 4.7

Customer type

- Member
- Normal

Product line

- Electronic accessories
- Fashion accessories
- Food and beverages
- Health and beauty
- Home and lifestyle
- Sports and travel

Conclusion and Reviews

In summary, the analysis of supermarket sales dynamics reveals valuable insights into consumer behaviour and operational trends. Key findings include Mandalay's strong performance, gender-specific ordering patterns, and product recommendations based on city data. Further exploration is recommended on the relationship between product ratings and sales volume, as well as unit price correlation. Clear visuals can enhance understanding, and the report provides actionable recommendations for targeted marketing and strategic investment.