Report on Cookie Data Analysis

Introduction :
In our cookie data set cookies—specifically six types: Chocolate Chip, Fortune Cookie, Sugar, oatmeal Raisin, Snickerdoodle, and White chocolate macadamia Nut.

We've got a treasure trove of data on these cookies, covering how many units were sold, their costs, the money they brought in (revenue), and the profits they made. And we're not just looking at one place or time; we're exploring different countries and dates to see how things vary.

This report isn't just about cookies; it's about understanding what people like, 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 :

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

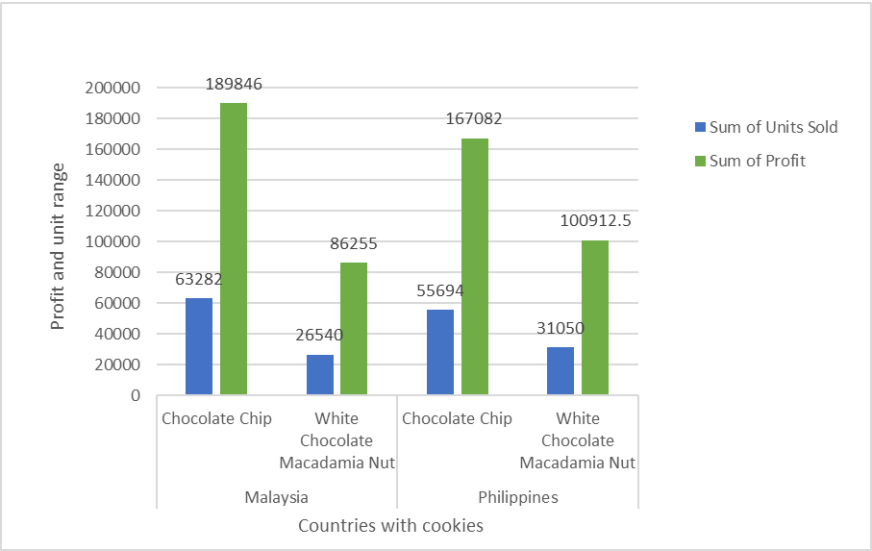
2. What is the performance of Choco Chips Cookies in all Country Which Competes the best.

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

4. which Cookie is the best Selling Cookie in India and US in year 2019,

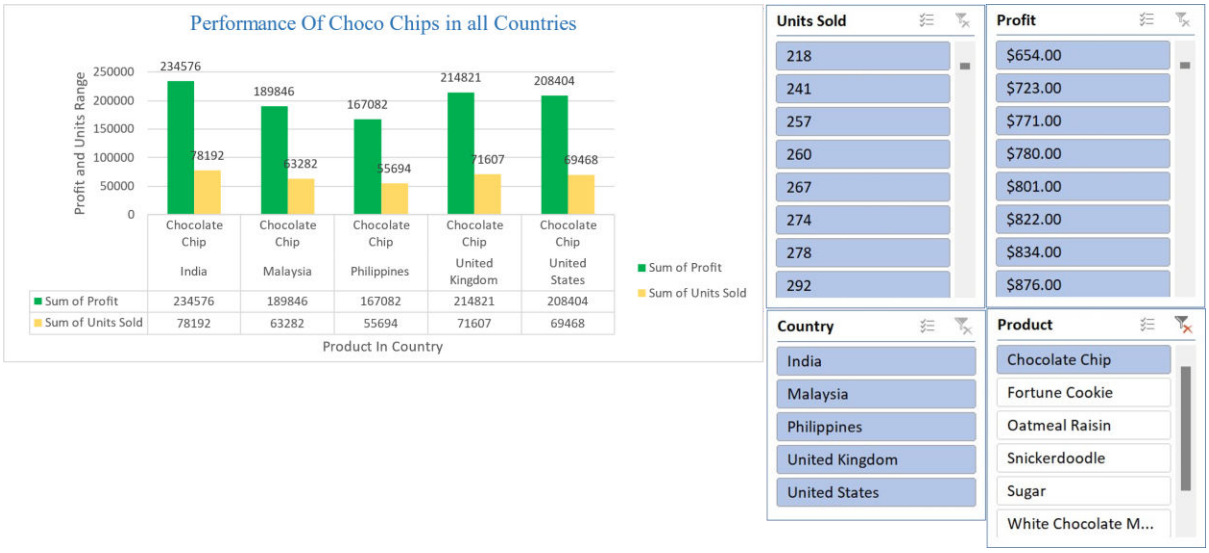
Analytics :

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



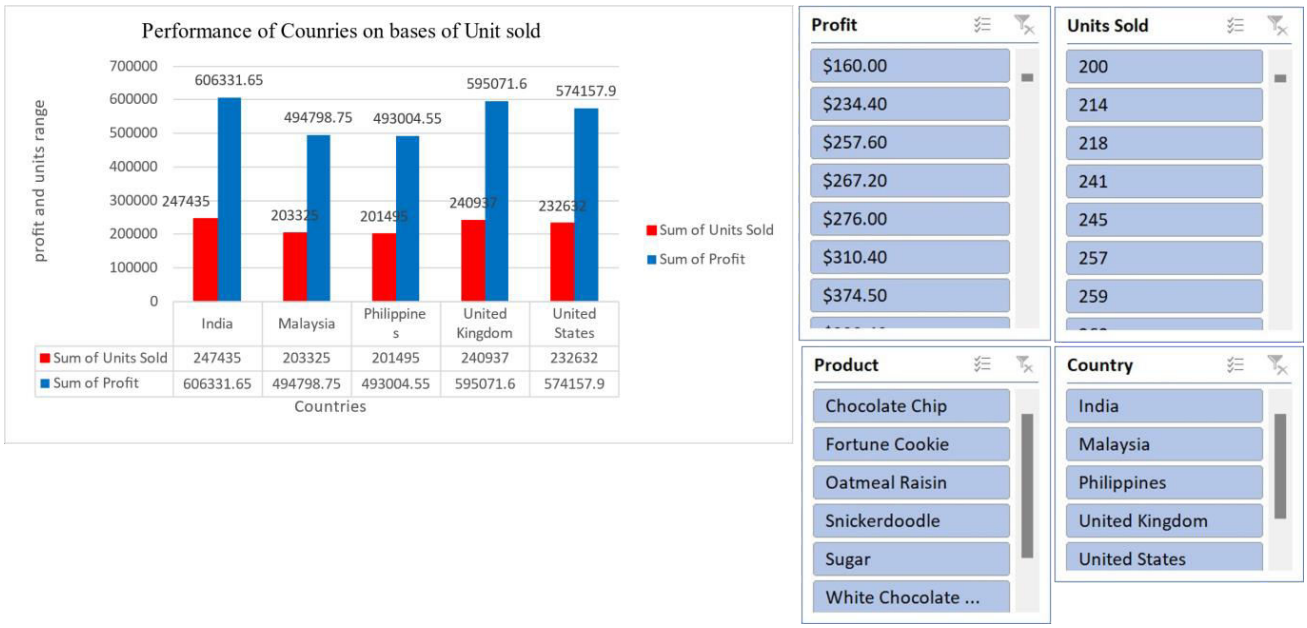
Ans:-The comparsion of Malaysia and Philippines on bases of Chocolate chip and White Chocolate Macadmia nut is given below:-

2. What is the performance of Choco Chips Cookies in all Country Which Competes thebest.



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.

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



Ans:- India stands out as the leading performer globally when it comes to both profit generation and units sold in the Choco chip market.

4 .which Cookie is the best Selling Cookie in India and US in year 2019,

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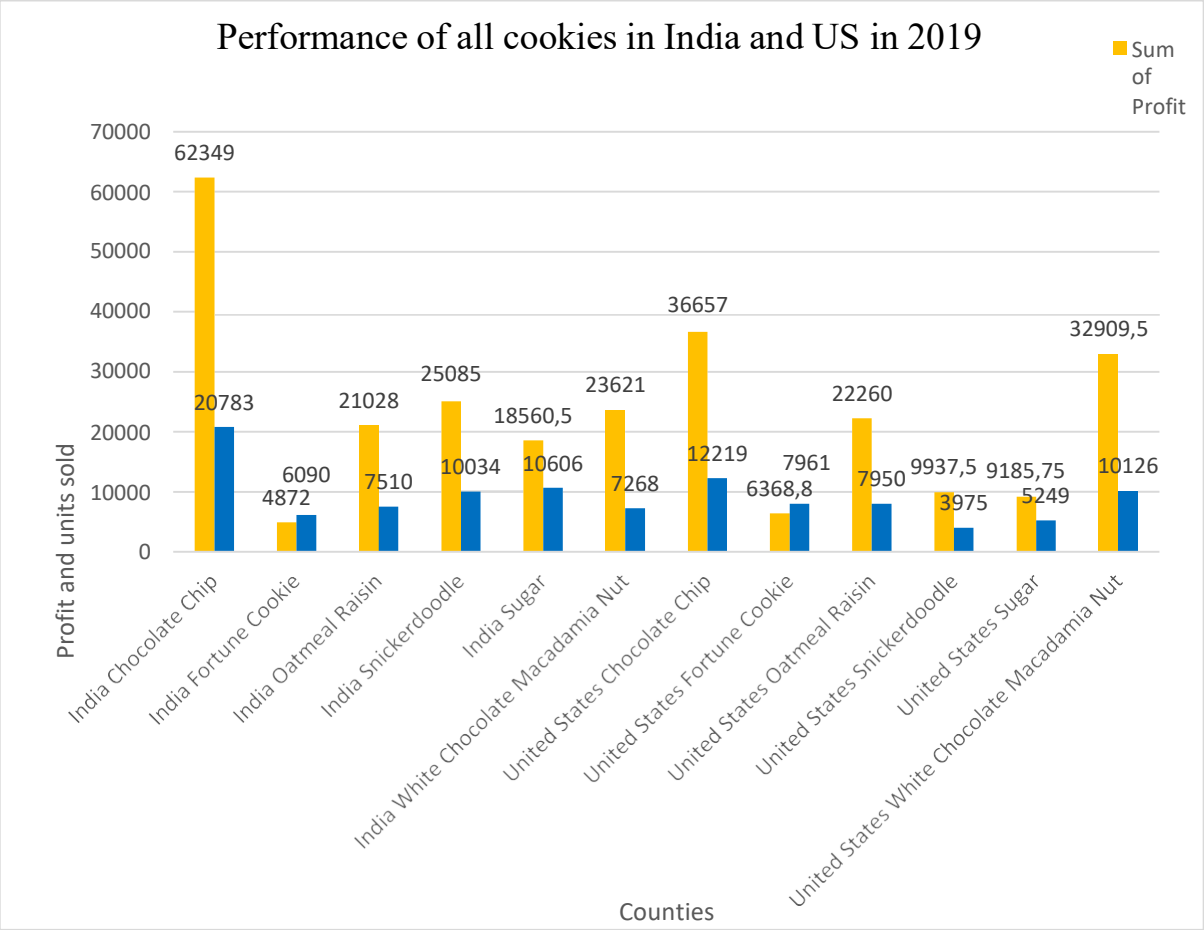

Ans:- In the year 2019, chocolate chip cookies emerged as the top-selling cookie in both Indiaand the United States

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 endeavors.

Regression:

SUMMARY OUTPUT

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

ANOVA

	df	*SS*	*MS*	*F*	*Significance 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			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 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

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.

Correlation:

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

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

Anova (Single Factor) :

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				

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.

Anova two factor without Replication:

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				

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 two factor with Replication:

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
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				

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.

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.

Units Sold		*Revenue*		*Cost*		*Profit*		*Date*	
Mean	1608.32	Mean	6700.456	Mean	2752.792	Mean	3947.664	Mean	43949.55
Standard I	32.78652	Standard I	174.767	Standard I	76.99166	Standard I	98.86874	Standard I	5.576615
Median	1542.5	Median	5871.5	Median	2423.6	Median	3424.5	Median	43967.5
Mode	727	Mode	8715	Mode	3450	Mode	5229	Mode	43739
Standard I	867.4498	Standard I	4623.901	Standard I	2037.008	Standard I	2615.821	Standard I	147.5434
Sample Va	752469.1	Sample Va	21380458	Sample Va	4149401	Sample Va	6842519	Sample Va	21769.05
Kurtosis	-0.31491	Kurtosis	0.464596	Kurtosis	0.810043	Kurtosis	0.338621	Kurtosis	-1.28655
Skewness	0.43627	Skewness	0.867861	Skewness	0.930442	Skewness	0.840484	Skewness	-0.10718
Range	4293	Range	23788	Range	10954.5	Range	13319	Range	457
Minimum	200	Minimum	200	Minimum	40	Minimum	160	Minimum	43709
Maximum	4493	Maximum	23988	Maximum	10994.5	Maximum	13479	Maximum	44166
Sum	1125824	Sum	4690319	Sum	1926955	Sum	2763364	Sum	30764685
Count	700	Count	700	Count	700	Count	700	Count	700
Largest(1)	4493	Largest(1)	23988	Largest(1)	10994.5	Largest(1)	13479	Largest(1)	44166
Smallest(1	200	Smallest(1	200	Smallest(1	40	Smallest(1	160	Smallest(1	43709
Confidenc	64.37186	Confidenc	343.1312	Confidenc	151.1626	Confidenc	194.1153	Confidenc	10.94892