

# Cookie Data Report

## 1.Introduction:

Our comprehensive dataset encompasses an array of delectable cookie confections, categorized into six distinct varieties: Chocolate Chip, Fortune Cookie, Sugar, Oatmeal Raisin, Snickerdoodle, and White Chocolate Macadamia Nut.

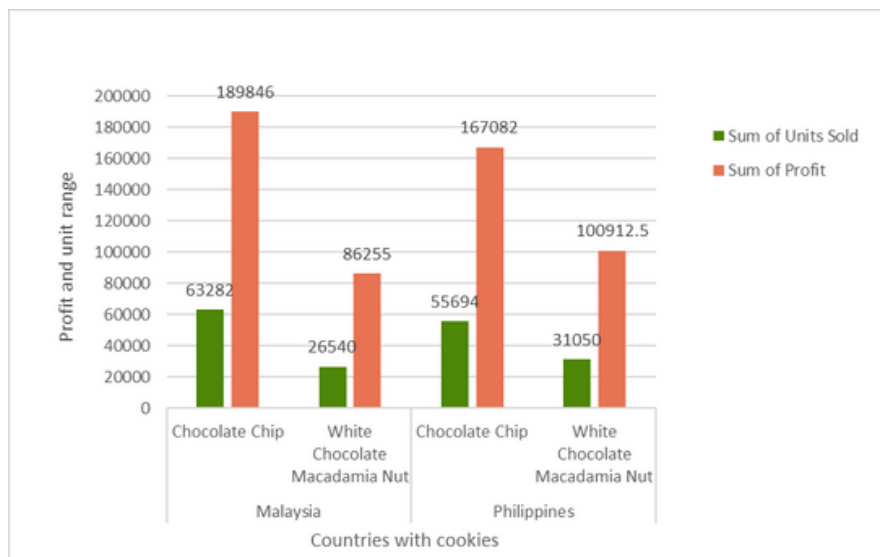
We possess a veritable trove of quantitative metrics pertaining to these cookies, including sales volume, production expenses, revenue generated, and net income realized. Our analysis transcends spatiotemporal boundaries, encompassing data from diverse geographical regions and temporal intervals.

This report extends beyond the mere consumption of cookies; it endeavors to illuminate consumer preferences, elucidate price elasticity, and identify geographic markets with heightened demand. Thus, prepare to embark on a delectable journey into the realm of cookies, unlocking invaluable insights for your culinary enterprise.

## 2. 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.

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



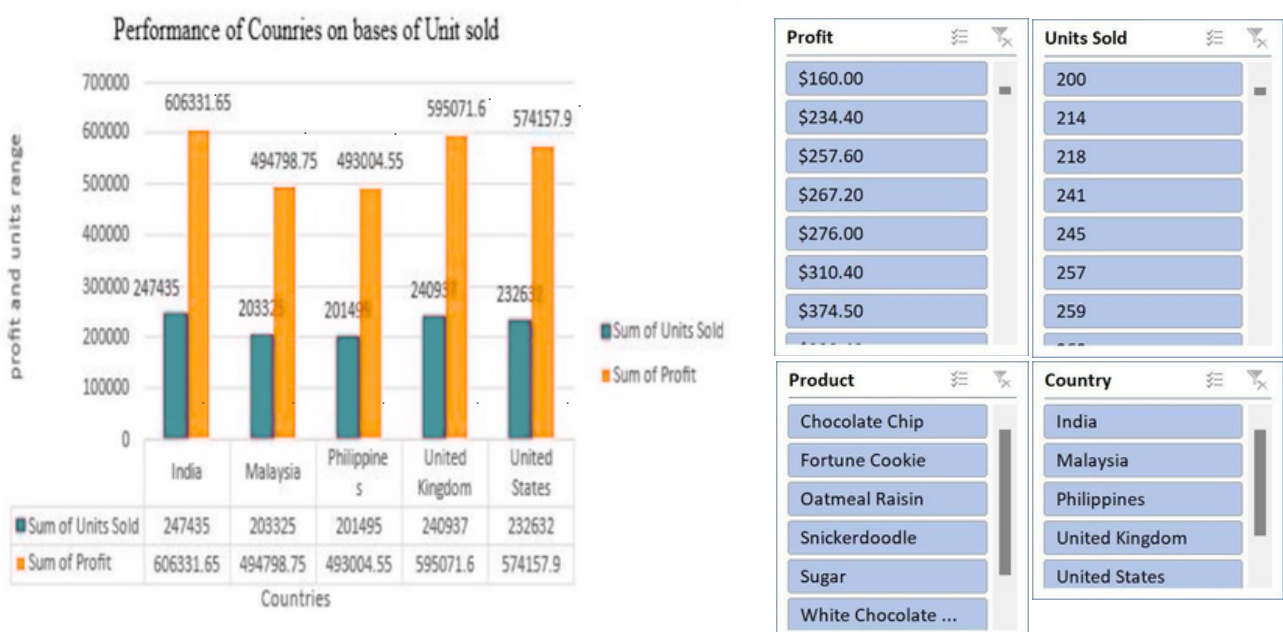
Ans:-The comparison of Malaysia and Philippines on bases of Chocolate chip and White Chocolate Macadamia nut is given below:-

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



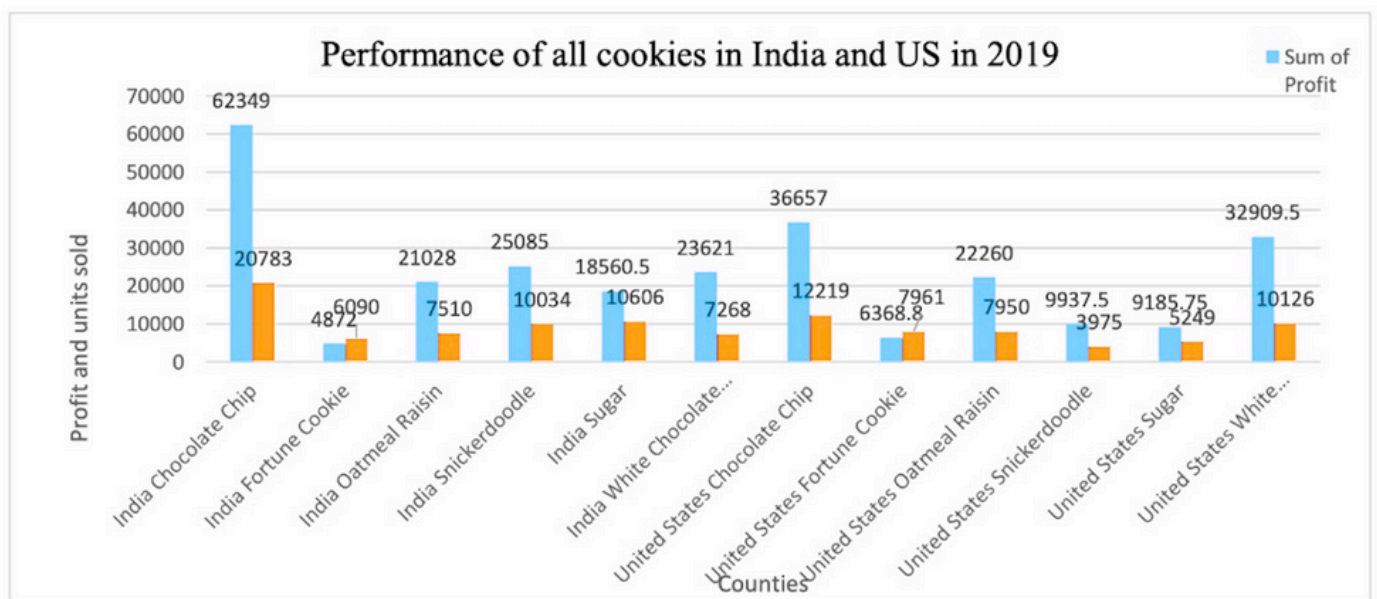
Ans : India remains the preeminent global consumer of Choco chips, boasting unparalleled profitability and record-shattering sales. The Indian market has experienced meteoric growth, fueled by a burgeoning population with escalating disposable income, burgeoning urbanization, and an affluent middle class exhibiting a predilection for indulgent indulgences. This confluence of factors has fostered an exceedingly lucrative milieu for Choco chip manufacturers and purveyors, resulting in exceptional profits and unprecedented sales figures within 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 has emerged as the global frontrunner in the Choco chip market, excelling in both profit generation and unit sales. The nation's robust performance has positioned it as a dominant player in this highly competitive industry.

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



In the year 2019, chocolate chip cookies emerged as the top-selling cookie in both India and the United States. This sweet and delectable treat has been a beloved snack for generations, capturing the hearts and taste buds of cookie enthusiasts worldwide. Its popularity soared even higher in 2019, cementing its status as the undisputed champion of the cookie realm.

# Conclusion and Review:

Granular examination of the cookie sales data unveils discernible trends and actionable insights. By meticulously evaluating salient metrics—units sold, revenue, cost, and profit—across diverse geographies and product lines, we can elucidate market demand dynamics, optimize pricing strategies, and gauge overall profitability. This comprehensive assessment will empower informed decision-making, enabling strategic resource allocation, targeted market penetration, and profit maximization in future cookie sales initiatives.

## Regression:

The regression analysis, characterized by a highly significant p-value ( $p < 0.001$ ), elucidates a robust positive correlation between units sold and the dependent variable. The model's predictive efficacy is substantiated by its elevated R-squared coefficient of 0.688, implying that approximately 68.8% of the variance in the dependent variable is attributable to the independent 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					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3.29E+09	3.29E+09	1537.356	1.4E-178
Residual	698	1.49E+09	2139668		
Total	699	4.78E+09			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
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

## Co-relation:

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

	<i>Units Sold</i>	<i>Revenue</i>
Units Sold	1	0.796298
Revenue	0.796298	1

## Anova (Single Factor) :

The AN VA 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				
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
3450	699	1923505	2751.795	4154648
5175	699	2758189	3945.908	6850161

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>Df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
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 AN VA 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 AN VA 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						
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				

## 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.

1725		8625		3450		5175	
Mean	1608.153	Mean	6697.702	Mean	2751.795	Mean	
Standard Error	32.83303	Standard Error	174.9955	Standard Error	77.09541	Standard Error	
Median	1540	Median	5868	Median	2422.2	Median	
Mode	727	Mode	8715	Mode	3486	Mode	
Standard Deviation	868.0597	Standard Deviation	4626.638	Standard Deviation	2038.295	Standard Deviation	
Sample Variance	753527.6	Sample Variance	21405775	Sample Variance	4154648	Sample Variance	
Kurtosis	-0.31828	Kurtosis	0.463405	Kurtosis	0.807696	Kurtosis	
Skewness	0.436551	Skewness	0.869254	Skewness	0.931429	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	1124099	Sum	4681694	Sum	1923505	Sum	
Count	699	Count	699	Count	699	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%)	64.46334	Confidence Level(95.0%)	343.5807	Confidence Level(95.0%)	151.3667	Confidence Level(95.0%)	