

J&J Chocolates

MGMT216-001 - Business Data Analytics

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Introduction:

J&J Chocolates, a renowned manufacturer and retailer of high-quality and specialty chocolate products based in central New Jersey, has witnessed a substantial surge in sales following the establishment of its e-commerce platform. The online platform launched a few years ago, has not only met but surpassed the company's initial sales expectations. The management is now keen on further amplifying this success by strategically augmenting sales through the website.

To garner comprehensive insights into the behavior and preferences of the online clientele, a meticulous examination of a sample comprising 50 chocolate transactions from the previous month was conducted. This sample encapsulates crucial data points, including the day of the week each transaction occurred, the preferred payment methods employed by customers, the duration of time spent on the website, the number of website pages viewed, and the corresponding transaction amounts. Through the analytical lens of descriptive statistics, this report endeavors to unearth patterns, trends, and correlations that can inform the formulation of astute business strategies aimed at propelling sales to new heights and ensuring a delightful shopping experience for customers. By delving into these vital aspects, this report aims to offer actionable recommendations and business insights to guide J&J Chocolates in their pursuit of an even more prosperous digital retail journey.

Data Analysis:

<i>Time (min)</i>		<i>Amount Spent (\$)</i>	
Mean	12.77	Mean	68.4102
Standard Error	0.852028791	Standard Error	4.616280573
Median	11.4	Median	62.15
Mode	11.4	Mode	#N/A
Standard Deviation	6.024753361	Standard Deviation	32.64203297
Sample Variance	36.29765306	Sample Variance	1065.502316
Kurtosis	2.56445481	Kurtosis	0.737209427
Skewness	1.479518564	Skewness	1.023555592
Range	28.6	Range	140.67
Minimum	4.3	Minimum	17.84
Maximum	32.9	Maximum	158.51
Sum	638.5	Sum	3420.51
Count	50	Count	50

Figure 1.1

As shown in Figure 1.1, J&J Chocolate's online shoppers have a varying range of time spent on the website, with an average of approximately 12.77 minutes. The standard deviation of about 6.02 minutes indicates a moderate level of variability. The minimum time of 4.3 minutes and the maximum time of 32.9 minutes suggest a wide range of user engagement with the website.

Figure 1.2

As shown in Figure 1.2, The mean amount spent per transaction is approximately \$68.41, with a standard deviation of approximately \$32.64. The minimum transaction amount of \$17.84 and the maximum transaction amount of \$158.51 suggest a wide variation in spending behavior among shoppers.

J&J Chocolate's online shoppers show diverse engagement patterns. Some shoppers spend a relatively short time on the website and make smaller purchases, while others spend a longer time and make larger transactions. Understanding these patterns is crucial for tailoring

marketing strategies and improving the online shopping experience to cater to a wide range of customer behaviors and preferences.

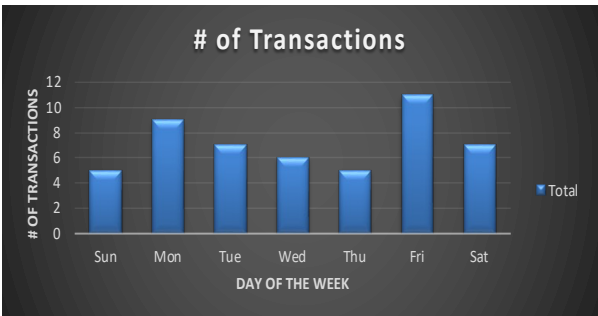


Figure 1.3

Day	Total Amount Spent (\$)	Mean Amount Spent (\$)
Sun	\$218.15	\$43.63
Mon	\$813.38	\$90.38
Tue	\$414.86	\$59.27
Wed	\$355.92	\$59.32
Thu	\$294.03	\$58.81
Fri	\$945.43	\$85.95
Sat	\$378.74	\$54.11
Grand Total	\$3,420.51	\$68.41

Figure 1.4

As shown in Figure 1.3, Mondays and Fridays have the highest transaction frequency. This suggests that these days are particularly active in terms of customer purchases, possibly because weekdays are a common time for online shopping. Saturdays and Sundays have a moderate number of transactions and spending, suggesting that customers engage in shopping even during the weekend. This may be attributed to having more leisure time for online shopping over the weekend.

As shown in Figure 1.4, Mondays and Fridays have the highest mean amount spent per transaction. This could be due to potential promotions, paydays, or customers indulging in treats as they prepare for the weekend.

Understanding these patterns based on the day of the week allows J&J Chocolates to tailor marketing strategies, discounts, and promotions to optimize sales during specific days. They can use these insights to plan targeted campaigns, offer promotions during lower sales days, or enhance the customer experience to maximize sales and customer satisfaction throughout the week.

Payment Type	Total Amount Spent (\$)	Mean Amount Spent (\$)
Apple Pay	\$535.49	\$76.50
Credit Card	\$1,656.81	\$61.36
PayPal	\$1,228.21	\$76.76
Grand Total	\$3,420.51	\$68.41

Figure 1.5

According to Figure 1.5 customers who use Credit Cards have the spending, followed by PayPal, and Apple Pay users. Although Credit Card users spend the overall the average amount spent per transaction is slightly lower compared to PayPal users. This indicates that on average PayPal users tend to make purchases, per transaction. There could be reasons for this such as the convenience or incentives associated with using PayPal. The average amount spent per transaction for each payment method is quite close to the amount spent per transaction for all payment types combined (\$68.41). This suggests a distribution of spending across different payment methods. By analyzing the dollars spent and amount spent per transaction for each payment type J&J Chocolates can gain insights, into customer preferences and tailor their marketing efforts accordingly.

Understanding the payment preferences and spending behavior of customers allows J&J Chocolates to tailor marketing strategies. They could focus on promoting PayPal for higher-value purchases and offer exclusive deals or discounts to customers using this payment method. Enhancing the ease and security of credit card transactions could potentially increase the frequency of credit card payments. Offering loyalty points or discounts for certain payment methods might incentivize customers to choose specific payment options.

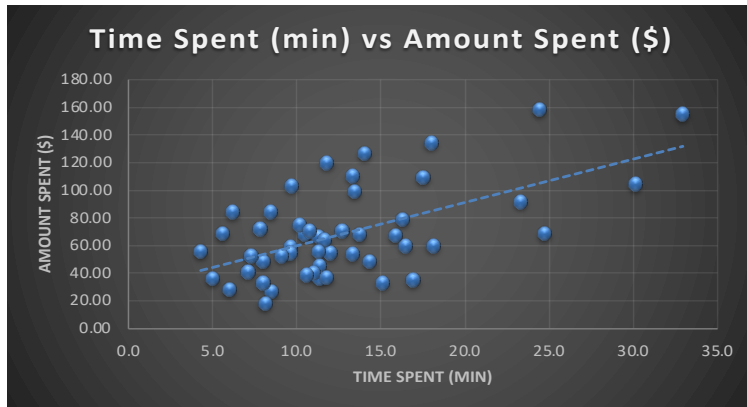


Figure 1.6

The estimated correlation coefficient is, around 0.5798, which indicates a linear connection between the duration of website usage and the amount of money spent. A positive correlation implies that as the time spent on the website increases there is a tendency for the dollar amount spent to increase. Figure 1.6 illustrates a pattern where data points are scattered in a manner that suggests a trend. This aligns with our calculated correlation coefficient. As more time is invested in browsing the website there is a likelihood for customers to spend money. Understanding this relationship holds importance for J&J Chocolates as they can enhance their website to engage customers for durations potentially leading to higher spending levels. This could involve improvements, in website design and content. Providing incentives to encourage customers to explore.

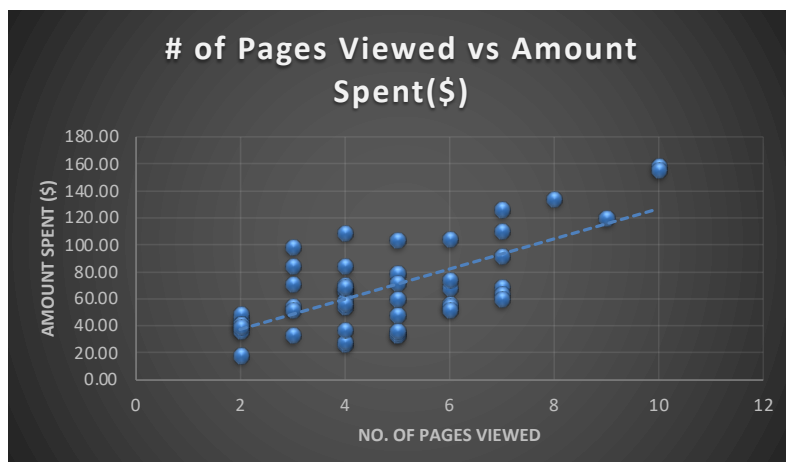


Figure 1.7

The sample correlation coefficient being close to 0.6986 suggests a strong positive correlation. This implies that as the number of website pages viewed increases, the dollar amount spent tends to increase as well. As shown in Figure 1.7, we observe a trend where most points are aligned in a way that suggests an upward sloping pattern. This aligns with the positive correlation coefficient we calculated. As the number of website pages viewed increases, there's a tendency for the dollar amount spent to increase. Knowing that more page views are associated with higher spending, J&J Chocolates can tailor marketing campaigns to encourage customers to navigate through multiple pages. This could include promotions that require browsing through various product categories.

Business Recommendations:

❖ Operational Recommendations:

- ◆ As shown in Figure 1.3, Fridays and Mondays are the busiest days in terms of transaction. Inventory should be optimized accordingly to handle higher traffic on these days.
- ◆ As shown in Figure 1.4, Sundays have the lowest mean amount spent per transaction, indicating a potential for targeted marketing or special promotions to increase sales on this day.

❖ Payment Method Recommendations:

- ◆ As shown in Figure 1.5, The higher mean amount spent with Apple Pay, encouraging the use of Apple Pay and potentially offering discounts or promotions for this payment method could be beneficial.

❖ Time, Pages Viewed, and Amount Spent:

- ◆ Improving the user interface and making it easier for customers to navigate and view multiple pages can be a strategy to potentially increase sales. A user-friendly website could encourage customers to browse more and, consequently, spend more.
- ◆ As shown in Figure 1.6, The positive correlation suggests that J&J Chocolates should focus on strategies to enhance the time customers spend on their website, as it's likely to positively impact the amount they spend, potentially leading to increased revenue.
- ◆ As shown in Figure 1.7, The strong positive correlation between the number of website pages viewed and the dollar amount spent provides valuable insights for J&J Chocolates. They can use this information to optimize their website, marketing strategies, and user experience to drive more page views and increase sales.

Conclusion:

Based on the data analysis, several insights have emerged regarding J&J Chocolates' online shoppers. The analysis provided a comprehensive view of customer behavior in terms of time spent on the website, number of pages viewed, mean amount spent per transaction, and patterns associated with different payment methods. The findings revealed variations in customer engagement and spending habits across different days of the week and payment types. Notably, weekdays saw higher transaction frequencies, while Fridays had the highest mean amount spent per transaction. Additionally, PayPal users displayed the highest mean spending per transaction,

suggesting potential opportunities for targeted marketing or promotions to further leverage this payment method. To enhance their business strategy, J&J Chocolates should consider tailoring marketing efforts based on these insights, optimizing payment processes, and offering targeted promotions to maximize sales and improve customer satisfaction.

However, this analysis has certain limitations. The dataset's size is relatively modest, restricting the depth of analysis and the ability to draw definitive conclusions about customer behavior. Including more variables such as demographic information, referral sources, or product preferences could provide a more comprehensive understanding of customer profiles and purchasing patterns. Additionally, contextual information about marketing campaigns, seasonal factors, or external events could offer a more nuanced view of customer behavior. Expanding the dataset and incorporating additional variables would allow for a more robust and accurate analysis, providing a solid foundation for strategic business decisions.