

J&J Chocolates Online

Business Data Analytics MGMT216-003

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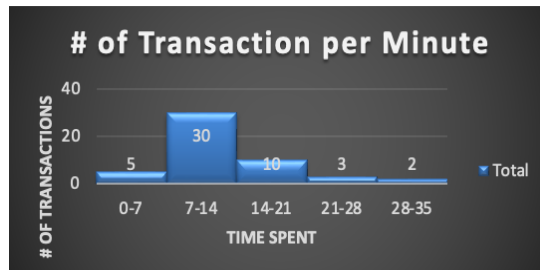
## Introduction

J&J Chocolates Online is a company that sells chocolates online. They sell high-quality chocolates and they have a factory plant and retail store in Central Jersey. The company provided 50 chocolate transactions from the previous month to try and help them increase sales. The data provided included the days of the week each transaction was made, the type of payment method the customer used, the amount of time spent on the website, the number of website pages viewed, and the amount spent by each customer. Using this data, this report will go over the findings of the data given by the company. It will also go over possible ways to increase the company's production.

## Question 1

Table 1 and Figure 1: Number of Transactions per Minute

Time Spent (min)	# of Transactions
0-7	5
7-14	30
14-21	10
21-28	3
28-35	2
<b>Grand Total</b>	<b>50</b>



Descriptive Analysis 1(Time Spent)

Time (min)	
Mean	12.77
Standard Error	0.852028791
Median	11.4
Mode	11.4
Standard Deviation	6.024753361
Sample Variance	36.29765306
Kurtosis	2.56445481
Skewness	1.479518564
Range	28.6
Minimum	4.3
Maximum	32.9
Sum	638.5
Count	50

Table 2 and Figure 2: Percent of Transactions per Minute

Time Spent (min)	Percent Frequency
0-7	10.0%
7-14	60.0%
14-21	20.0%
21-28	6.0%
28-35	4.0%
<b>Grand Total</b>	<b>100.00%</b>

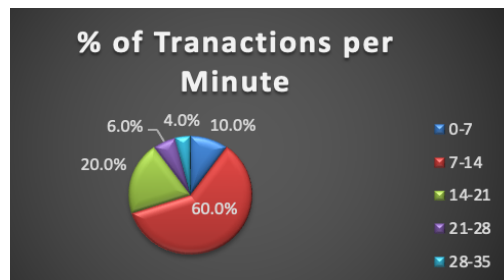
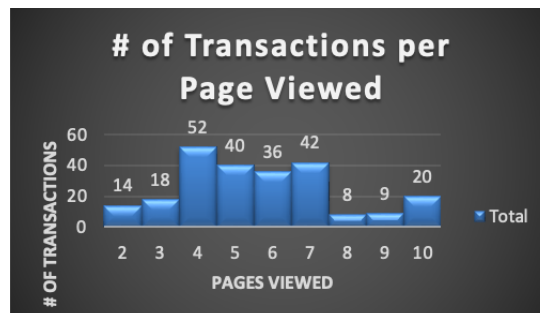


Table 3 and Figure 3: Number of Transactions per Page Viewed

Pages Viewed	# of Transactions
2	14
3	18
4	52
5	40
6	36
7	42
8	8
9	9
10	20
<b>Grand Total</b>	<b>239</b>



Descriptive Analysis 2 (Pages Viewed)

Pages Viewed	
Mean	4.78
Standard Error	0.287551238
Median	4
Mode	4
Standard Deviation	2.033294301
Sample Variance	4.134285714
Kurtosis	0.251055739
Skewness	0.706158386
Range	8
Minimum	2
Maximum	10
Sum	239
Count	50

Table 4 and Figure 4: Percent of Transactions per Page viewed

Pages Viewed	% Frequency
2	5.86%
3	7.53%
4	21.76%
5	16.74%
6	15.06%
7	17.57%
8	3.35%
9	3.77%
10	8.37%
<b>Grand Total</b>	<b>100.00%</b>

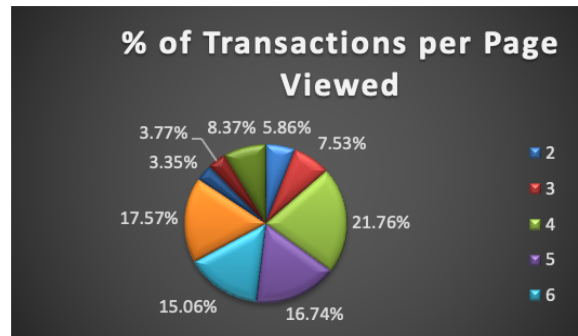
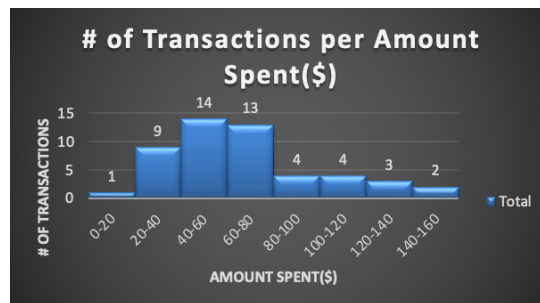


Table 5 and Figure 5: Number of Transactions per Amount Spent (\$) Descriptive Analysis 3 (Amount Spent)

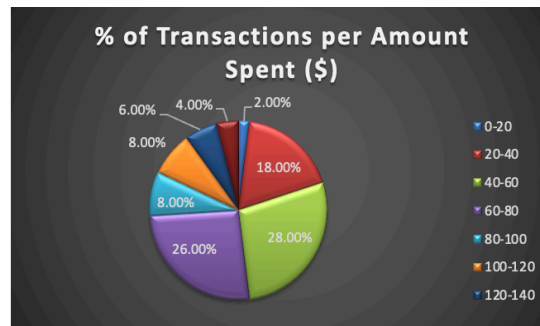
Amount Spent (\$)	# of Transactions
0-20	1
20-40	9
40-60	14
60-80	13
80-100	4
100-120	4
120-140	3
140-160	2
<b>Grand Total</b>	<b>50</b>



Amount Spent (\$)	
Mean	68.4102
Standard Error	4.616280573
Median	62.15
Mode	#N/A
Standard Deviation	32.64203297
Sample Variance	1065.502316
Kurtosis	0.737209427
Skewness	1.023555592
Range	140.67
Minimum	17.84
Maximum	158.51
Sum	3420.51
Count	50

Table 6 and Figure 6: Percent of Transactions per Amount Spent (\$)

Amount Spent (\$)	% Frequency
0-20	2.00%
20-40	18.00%
40-60	28.00%
60-80	26.00%
80-100	8.00%
100-120	8.00%
120-140	6.00%
140-160	4.00%
<b>Grand Total</b>	<b>100.00%</b>



From these numerical summaries, I learned that the majority of customers spend 7-14 minutes making a transaction as shown in Table 1 and Figure 1. When customers viewed 4 pages the number of interactions was the most at 52 shown in Table 3 and Figure 3. Customers mostly spend between \$40-\$60 shown in Table 5 and Figure 5. With this information, customers are more likely to spend money if they spend 12.77 minutes on the website shown in Descriptive Analysis 1, and have to view 4.78 pages shown in Descriptive Analysis 2. The company can use this information to reduce the amount of pages viewed and make the website easier to use.

## Question 2

Table 7 and Figure 7

Day	# of Transactions
Sun	5
Mon	9
Tue	7
Wed	6
Thu	5
Fri	11
Sat	7
<b>Grand Total</b>	<b>50</b>

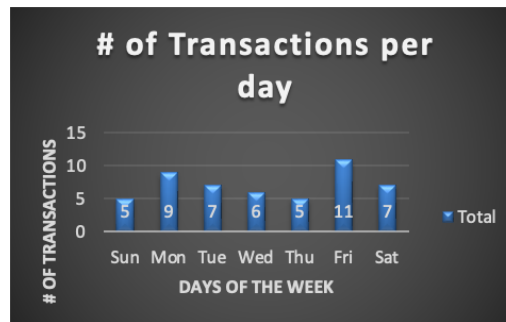


Table 8 and Figure 8

Day	% of Transactions
Sun	10.00%
Mon	18.00%
Tue	14.00%
Wed	12.00%
Thu	10.00%
Fri	22.00%
Sat	14.00%
<b>Grand Total</b>	<b>100.00%</b>

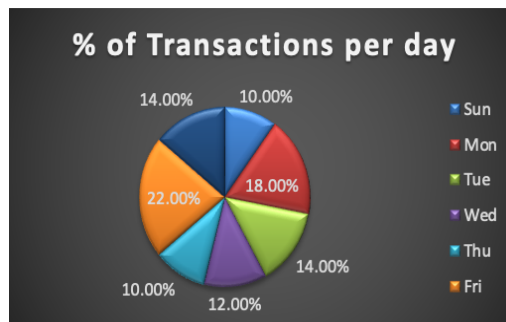


Table 9

Days	Total Amount Spent	Average of 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
<b>Grand Total</b>	<b>3420.51</b>	<b>68.4102</b>

On Fridays, customers are most active having 22% of weekly transactions shown in Table and Figure 8. The most money spent is on Fridays too shown in Table 9, meaning shoppers like shopping the most. Thursdays and Sundays are the slowest days having 5 interactions shown in Table and Figure 7. Sunday is the slowest day out of the two because it has the lowest amount spent in Table 9. To make other days have more interactions there could be discounts or special deals on days with few interactions.

## Question 3

Table 10 and Figure 9:

Payment Type	# of Transactions
Apple Pay	7
Credit Card	27
PayPal	16
<b>Grand Total</b>	<b>50</b>

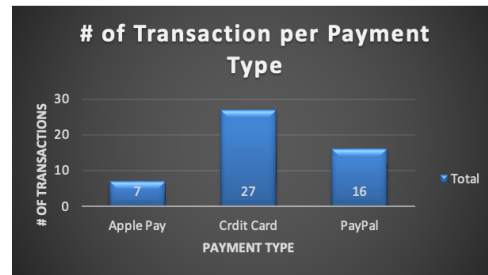


Table 11 and Figure 10:

Payment Type	Percent Frequency
Apple Pay	14.00%
Credit Card	54.00%
PayPal	32.00%
<b>Grand Total</b>	<b>100.00%</b>

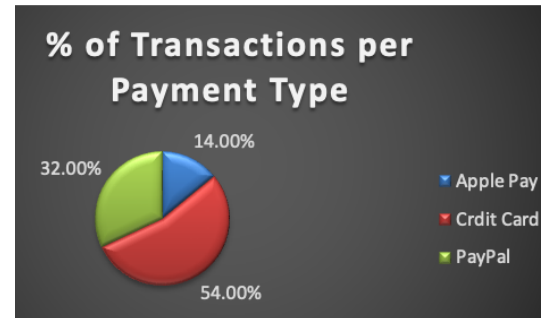


Table 12

Payment Type	Total Amount Spent (\$)	Average of Amount Spent (\$)
Apple Pay	\$ 535.49	\$ 76.50
Credit Card	\$ 1,656.81	\$ 61.36
PayPal	\$ 1,228.21	\$ 76.76
<b>Grand Total</b>	<b>\$ 3,420.51</b>	<b>\$ 68.41</b>

The payment type that's most used is credit card having a 54% usage amount out of the three payment types shown in Table 11 and Figure 10. The total amount spent on credit cards is the highest out of the three payment types shown in Table 12. Credit card payments have the most transactions at 27 shown in Table 10 and Figure 9. Having multiple types of payments is a good way to allow customers who don't usually pay with credit cards to pay, making more money for the company.

## Question 4



Figure 11: Amount Spent (\$) per Time Spent

**Correlation Coefficient:** 0.579790427

Time spent and amount spent have a moderate relationship because the Correlation coefficient is 0.58. The relationship is positive because the number isn't negative. The number ranges from -1 to 1. Also, the trend line shows that the relationship is positive since it's going up but it's not that steep. In Figure 11 after around 10-15 minutes, customers are more active during these times.

## Question 5

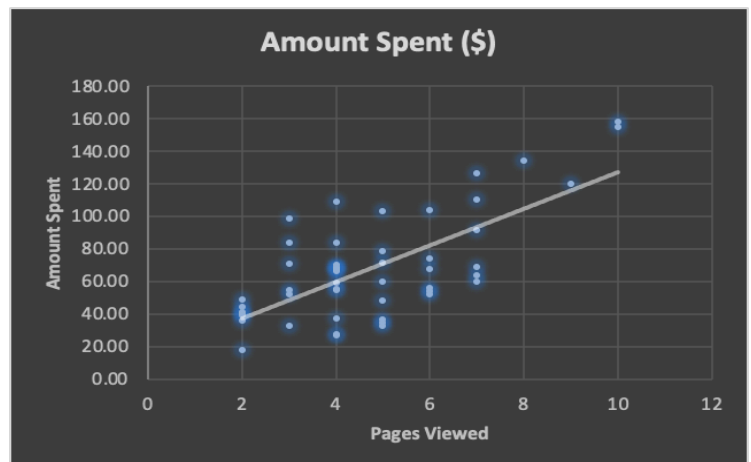


Figure 12: Amount Spent (\$) per Page Viewed

**Correlation Coefficient:** 0.698622987

Pages viewed and amount spent also have a moderate relationship, but their relationship is better than time spent and amount spent. They had a correlation coefficient of 0.699. The trendline shows that the relationship is positive too because the line is going up and the slope is steeper than in Figure 11. This shows that Figure 12 has a stronger relationship. Figure 12 shows that most customers bought during 3-7 pages viewed. As the amount of pages went up the amount of interaction went down but the amount spent is also above the trend line.

## **Business Recommendations**

The busiest day is Friday and the slowest day is Sunday. Sunday is the slowest day because it has the lowest amount spent with \$218. To make all days more popular the business could add special promotions on the slowest to generate more customers. The company could also bring in fewer staff to accommodate the slow days. In addition, the most popular payment method is credit cards. I would recommend the company leave the payment methods the way they are because having a variety of payment methods allows people who don't pay with credit cards to pay in different ways. Having flexibility allows for more customers to be able to purchase goods however they want.

From looking at the time spent, pages viewed, and amount spent, I concluded that customers will spend a mean amount of \$68 on products. Also, customers will take roughly 13 minutes to make a transaction and they will look at around 5 pages. I recommend the company to have no more than 7 pages because any more and the amount of interaction significantly falls. I recommend the company make the website easily accessible so people will spend less time on the website falling between 7-14 minutes.

## **Conclusions**

While viewing the data given by J&J Chocolates I found that customers take roughly 13 minutes and view 5 pages before making a transaction. The customer will spend roughly \$68 on products. The company should try and aim to have most customers be on the page between 4-7 minutes and have no more than 7 pages on their website. This will maximize the transactions made by customers and could increase sales. For J&J their busiest days are Fridays and the slowest days are Thursdays and Sundays. To combat the slow days, they could make a promotion or reduce the amount of employees they have working each day to reduce costs. Their most popular payment method is credit cards but having a variety of payments allows for more customers to be able to shop with them. Having the other payment methods is a good idea and should stay the way it is. Time spent and amount spent have a moderate relationship because the Correlation coefficient is 0.58. The relationship is positive because the number isn't negative. The number ranges from -1 to 1. In the scatter plot. After around 10-15 minutes customers spent more money during this time than at other times. Pages viewed and amount spent also have a moderate relationship, but their relationship is better than time

spent and amount spent. They had a correlation coefficient of 0.699. To make this better, there could've been a large data set with more variables to be able to make a more precise analysis.