Scout Coffee Customer Accommodation Report

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EXECUTIVE SUMMARY

Scout Coffee's location at 880 Foothill in San Luis Obispo is at the center of a busy shopping center and has been impacted severely by the COVID-19 pandemic. Pandemic restrictions closed down the shop and have limited its capacity to hold customers during its reopening. Additionally, San Luis Obispo has a saturated coffee shop market, leading to intense competition in the area. With limited capacity, production ability, and intense competition, small coffee shops like Scout need to ensure a high level of customer satisfaction. While still busy, our team believes that the current shop set-up is not ideal, which is leading to lower customer retention and decreased sales for the shop. With long wait times, a lack of seating, privacy, and other amenities, Scout Coffee is turning away new customers and disincentivizing returning customers from giving consistent business. The time period of our study was 6 weeks during the months of October and November. Without access to Scout Coffee business information, it is impossible to quantify the degree of the problem. But in the customer survey of 26 people, 12 responses indicated that they left because of an issue they had with Scout Coffee. Additionally, during our study, we witnessed customers leaving after seeing the size of the order line or the lack of seating.

For this project, the team utilized the Six Sigma DMAIC problem-solving process to find where Scout Coffee's service may not be up to the standards of their customers. The study began with a brainstorming session to think about what issues may cause subpar service from Scout Coffee. This was visualized in a fishbone diagram with the ultimate issue of poor customer retention. Following this, a customer survey was created to gather information on the customer opinions of Scout Coffee's service. Surveyed customers rated their experience and explained what compelled them to leave the store without giving them their patronage. Finally, our team went to the store location and observed the flow of customers. We gathered data to determine if there are peak hours that caused a customer bottleneck, with customers either waiting in line or waiting for an acceptable seat.

While Scout had an overall satisfactory approval level from our customer survey, customers regularly struggled to find acceptable seating and found many reasons to leave. Our customer survey indicated that while the venue was enticing, there were too many issues with the process of getting an order and finding a seat that customers decided to leave instead of waiting for seating space and their order. Overall, the store was poorly equipped to deal with the high volume of customers that were present during peak hours. We were able to determine peak volume hours during the weekend and in the mornings where seating was relatively unavailable. Additionally, the wait times to put in an order and to receive an order were frequently long, regardless of whether the store was full or not. Our analysis discovered several potential solutions to fix these issues. A better-organized floor plan could help alleviate seating issues and could improve customer retention. If Scout Coffee organized their server schedule around the flow of customers by increasing the number of baristas during volume periods they could increase customer retention.

THE DEFINE PHASE

Problem Statement

The Scout Coffee shop location at 880 Foothill Boulevard is situated in a large shopping space, on the corner. Due to restrictions on businesses due to the ongoing pandemic, inside seating space has been reduced to minimize the risk of infection. Now, with fewer seats, there may not be enough comfortable seating to accommodate all the customers that want to sit and enjoy their purchases. The loss of seating may turn customers away who prefer to spend time in coffee shops.

With limited seating available at this location, Scout Coffee needs customer input on the seating arrangement, outlet location, and weather protection that could improve customer happiness and customer retention. The main goal of this project is to inquire about seating availability, outlet availability, quality of seating location, weather protection in outdoor spaces, and the general environment. This could lead to improvements for Scout's Coffee.

As a company, this project is relevant for Scouts because new and returning customers are turned away by long lines/wait times and the lack of adequate seating turns students away who are looking to spend a longer duration at the coffee shop.

SIPOC Diagram for Scout Coffee				
S	I	P	O	C
Suppliers	Inputs	Process	Outputs	Customers
Scout Coffee	Coffee	Make Coffee	Pastries	San Luis Obispo Residents
	Ingredients	Make Pastries	Coffee	Cal Poly Students
	Seating	Provide atmospheric seating		Cal Poly Faculty

Table 1: SIPOC diagram created for Scout Coffee

Scope

The scope of this project covers seating availability, seating arrangement, customer happiness, and service experience. The factors that are out of scope include quality of goods provided, who comes into the store, food processing equipment, and training/hiring of employees. It will be completed within a ten-week period, which limits the scope of the project as well.

THE MEASURE PHASE

The first measurement data taken was a survey that was sent out to local Cal Poly Students. Students make up a large percentage of Scout Coffee's customer base as it is located a mile away from Cal Poly's campus. The following questions were asked on the survey. There were a total of 26 responses to this survey. This survey was taken to initially diagnose issues that were apparent with the coffee shop. This data was then further analyzed using Excel.

- Have you recently visited the Foothill location of Scout Coffee?
- Did you enjoy the experience?
- Was there enough comfortable seating available?
- If you didn't stay, what caused you to leave?
    - The line was too long
    - Prices were too expensive
    - Not enough seating
    - Wasn't planning on staying to begin with
    - No outlet/not enough space
    - Other (free response)

The second measurement completed was observational data. The team observed the flow of customers to observe the total number of customers, seating availability, and high versus low volume periods. This data was then broken down into various categories to get a more in-depth understanding of the peak volume hours and days. The first was by date, weekend (Saturday and Sunday) versus weekday (Monday through Friday). The second was by the time of day, morning which was considered 8 am to 12 pm, and afternoons, which included 12 pm to 4 pm. 16 data samples were taken and the sample size of the data was 5. Each data sample was taken on the same day during the same period of time. One sample of data is shown in Figure 1. The data was then further analyzed using JMP and Excel.

	Date	Day of Wk	Type of Day	Time	Time of Day	People	Free tables	Free seats
1	7-Nov	Sunday	Weekend	9:28 AM	Morning	45	1	4
	7-Nov	Sunday	Weekend	9:31	Morning	47	0	2
	7-Nov	Sunday	Weekend	9:36	Morning	47	1	3
	7-Nov	Sunday	Weekend	9:48	Morning	44	2	5
	7-Nov	Sunday	Weekend	10:36	Morning	50	0	0

Figure 1: Counting Data Sample

Utilizing this data key metrics were calculated for future analysis. The metrics are displayed in Figure 2.

	Average People	Average Free Tables	Average Free Seats
All Time	33.78222222	2.983333333	9.386666667
Morning	39.28148148	2.305555556	6.588888889
Afternoon	28.54285714	3.542857143	12.04285714
Weekday	31.85454545	3.213636364	10.65454545
Weekend	40.58666667	2.04	5.28

Figure 2: Key Data Metrics

Lastly, as part of the measurement phase, a fishbone diagram was created. This was created to brainstorm potential errors with Scout Coffee. The parents that were used in this diagram were materials, measurement, people, work materials, equipment, and environment. The fishbone diagram is shown in Figure 3 below. This data was used in analysis when diagnosing the factors that most contributed to inefficiencies within the coffee shop.

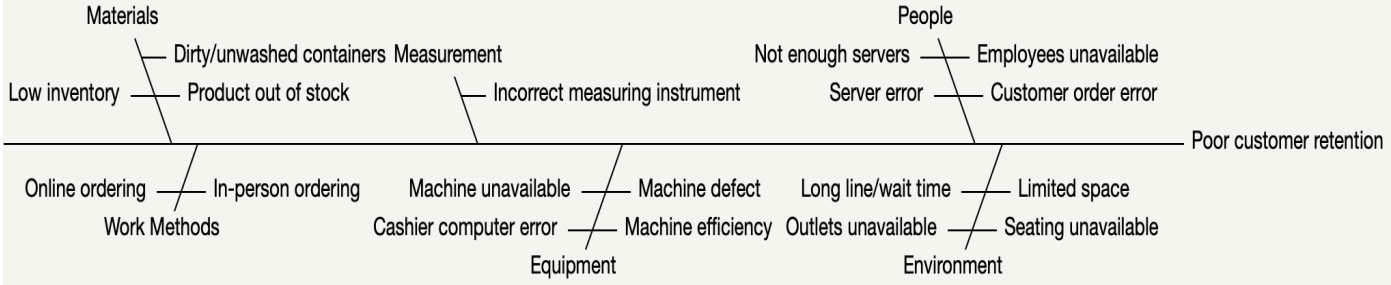


Figure 3: Fishbone Diagram

THE ANALYZE PHASE

With the data we collected in the measure phase, we began to analyze it. Using the multiple-choice data from our question asking “If you didn’t stay, what caused you to leave?”, a Pareto chart was created to analyze what issues bothered customers the most. From Figure 4, it became clear that customers had 3 key issues: that there was not enough seating, that they weren’t planning on staying, or that the line was too long. If the customer wasn’t planning on staying at Scout, that data point was removed because it wasn’t relevant to the question we were asking. The adjusted data is shown in figure 5. The total number of responses that we received was 33, with 9 of the responses saying that they weren’t planning on staying, to begin with. Not much was changed as the top two issues were the same and no other problems were found with this adjusted data.

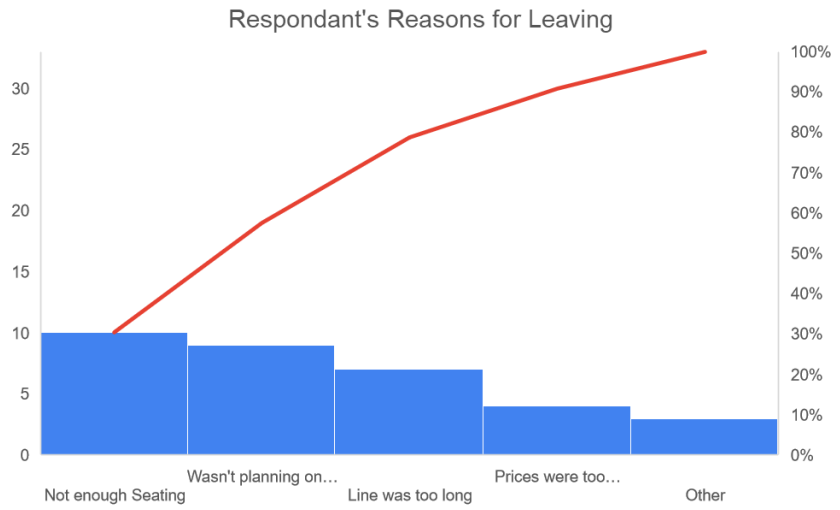


Figure 4: A Pareto chart detailing customers reasons for not staying at Scout

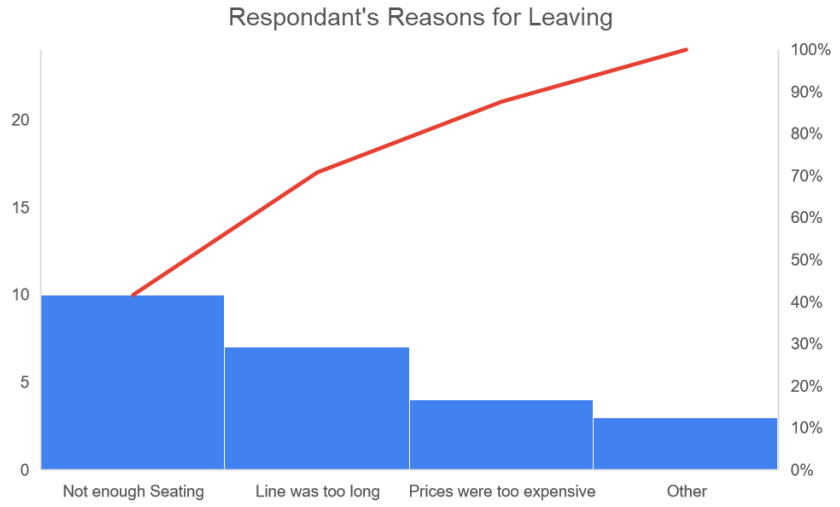


Figure 5: An alternative Pareto chart detailing reasons for not staying at Scout

From the questionnaire, we also were interested in customer satisfaction and the customer perception of available seating. The customers generally had high satisfaction, with 85% of our respondents saying that they did enjoy the experience. The customer perception of available seating was very different with the customers overwhelmingly responding no, with 61.5% of the 26 responses. This could indicate that at peak hours, there is not enough seating that customers find desirable. This was further confirmed in our counting data.

With our counting data, we wanted to visualize the availability of seating, tables, and the number of customers. In Figure 6, we compared the average number of seats and tables that were empty and separated the data based on the type of day (weekday & weekend) and time of day (morning & afternoon). The seats and table availability were averaged for our 16 samples (n=5). We saw that there was a consistent lack of seating at the prime business periods for Scout. Outside of the high volume periods, seating and table space didn't seem to be an issue, but during these volume periods, the location detailed a serious lack of seating.

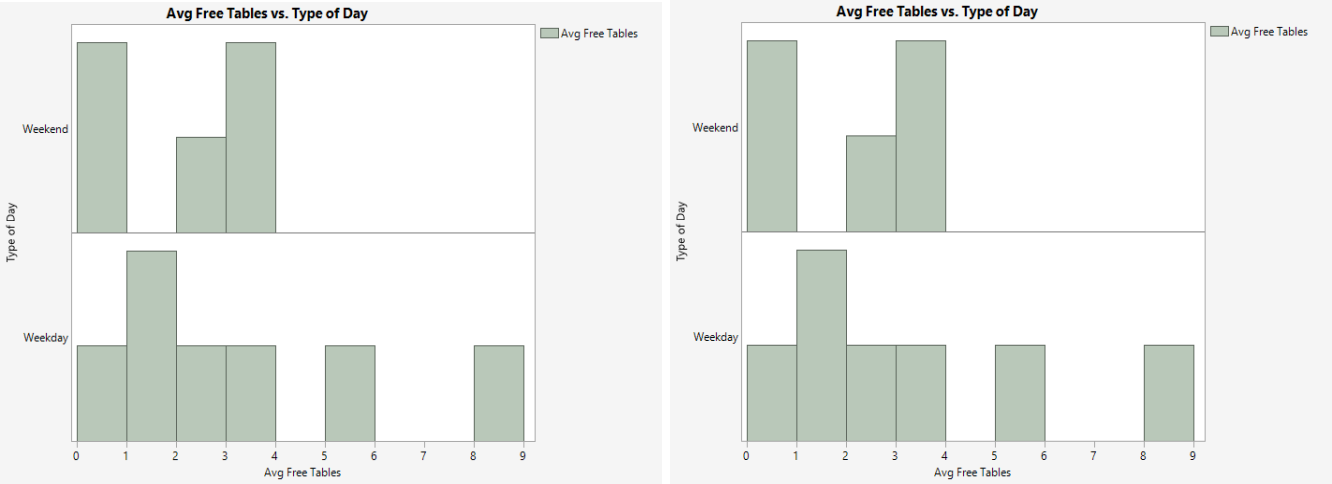


Figure 6: A Histogram showing table availability and seat availability over different time periods

When looking at the number of people in the venue, we used all available data and formatted them into box plots as shown in Figure 7. We looked at the number of people as the response with the type of day and time of day as the explanatory variables. From this, we can see that both time and type of day had an effect on the number of customers. In an attempt to confirm this association was significant, an ANOVA was constructed in JMP using people as the response and time and type of day as the explanatory. Unfortunately, this model could not be validated since the data did not seem normally distributed and no transformations satisfied this. Still, the ANOVA output was included in the appendix.

Intuitively, this data makes sense. Most people tend to drink their coffee in the mornings, and during the week people tend to be busier and less able to go to coffee shops. This would explain the high volume mornings and the extremely variable weekday morning values.

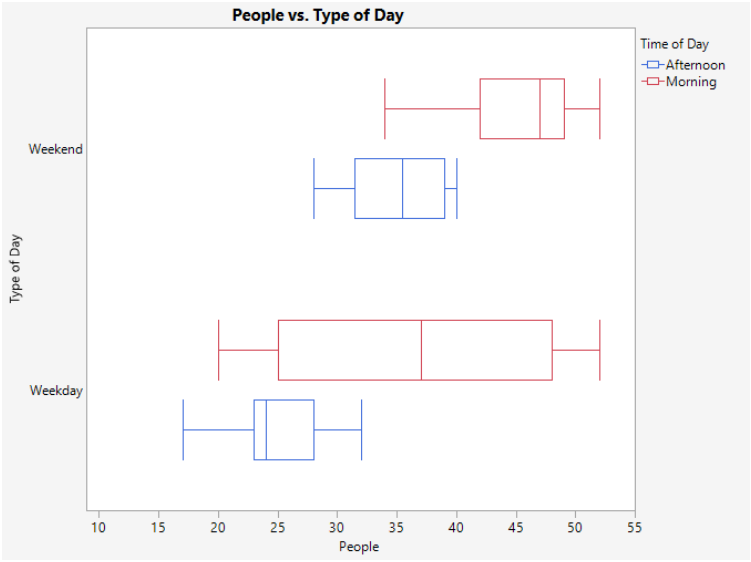


Figure 7: A Box Plot comparing customers to the type and time of day

THE IMPROVE PHASE

Recommended Solution

Our recommended solution is to improve the seating arrangement to increase customer retention and maximize comfortable seating. The shop's interior can free up space by removing their designated retail spaces: the entrance and back right corner. It is ideal to allocate retail products into one area. The current layout is pictured in Figure 8. The "$" icon indicates the location of the cashier and the retail space serves as a waiting area for customers. The rectangles with small circles represent tables with retail items for sale.

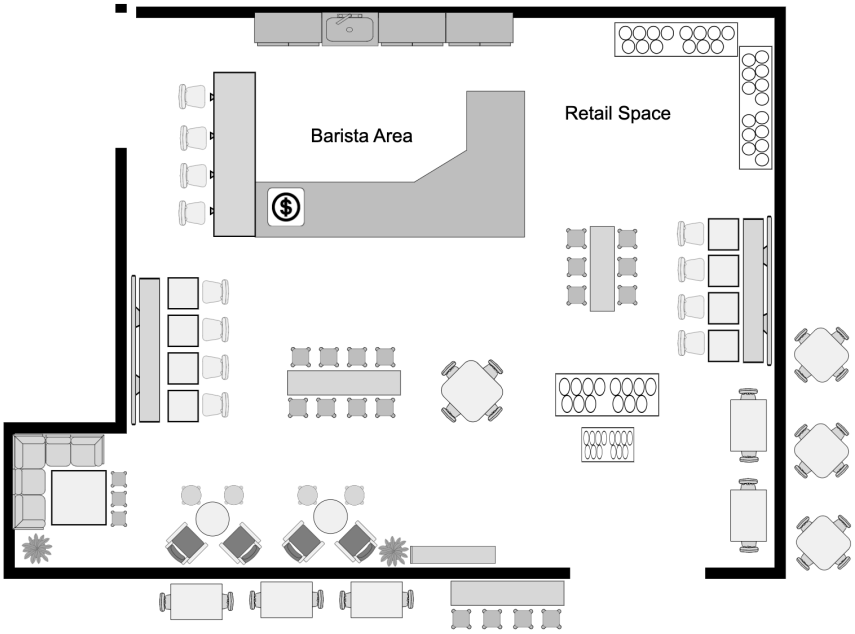


Figure 8: Current Layout of Scout

From Figure 8, the retail tables take up more space than needed, in which this space could potentially be used for more seating. By removing most of the space designated for retail, the shop can add more seating. An improved layout is shown below in Figure 9.

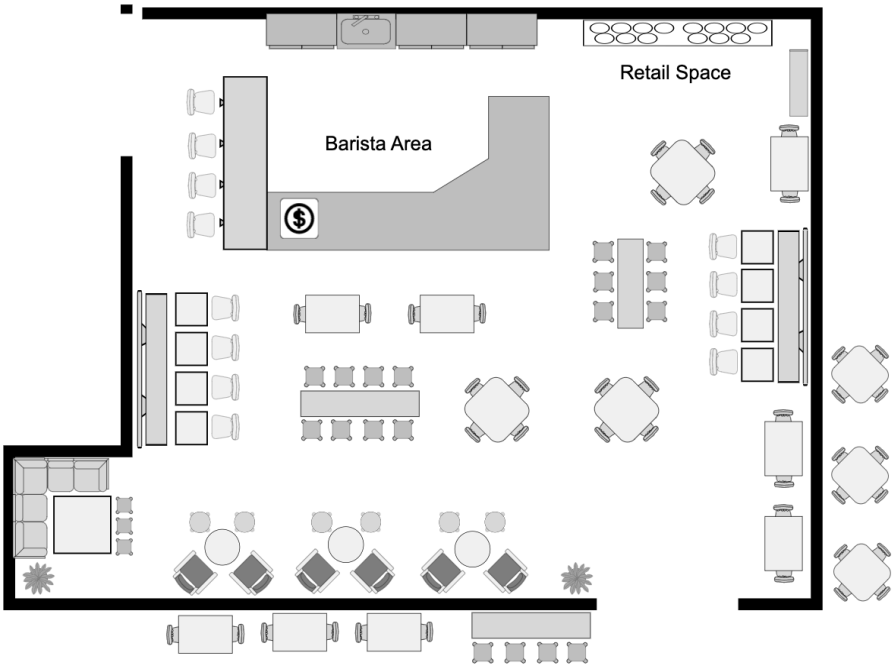


Figure 9: Improved Layout of Scout

In the improved layout design, more seating has replaced the excess retail space in the shop. The retail space is allocated to one wall while still maintaining the waiting area for customers. Although the seating can be arranged in many ways, this layout is most ideal for maximizing space and clearly defines a pathway to the cash register.

As for making changes to the shop's exterior, this is challenging as the shop's location is in the corner of a busy plaza. Exterior additions need to be carefully chosen as there needs to be adequate room for people to walk through.

Alternative Solutions

Alternative solutions are related to improving the time-to-serve during the high volume hours of 8:00 AM and 12:00 PM on both weekdays and weekends especially. These are additional potential methods for improvement during these hours:

- Increase the number of baristas
- Redesign process flow
- Simplify menu
- Expand to online food ordering company platforms (DoorDash, Uber Eats, etc.)

By increasing the number of baristas, the shop can handle the number of customers during high volume hours. However, the shop must adhere to the number of machines and appliances available in order to prevent crowding and inefficiencies within the serving process. With the ideal number of baristas to machines/appliances, the process(es) and procedures can be standardized.

Simplifying the menu would be easier for baristas and baristas-in-training to improve their time to serve, and for customers to quickly make a decision on what to order.

Scout Coffee currently has their own online order system through their website, but expansion to other online ordering platforms can be beneficial to business.

THE CONTROL PHASE

Given our suggestions for improvement, we came up with a handful of techniques to measure their effectiveness. These suggestions are listed below:

- Implement a Time-to-Serve counter, recording the time to serve for each customer
- Prompt customers to take a survey on their experience. Include on receipt or with a QR code at the register
- Monitor the number of customers standing, sitting, and the number of open seats/tables
- Create a floor plan with tables and seats. Monitor what locations are frequently occupied and what locations are frequently unoccupied to maximize the quality and availability of seating

The first two suggestions are aimed to ensure that the wait times and service are improved. Measuring the time to serve would give the company information on how long it takes for each customer to get their order. This data can be used in a control chart to monitor the time during different times of day, days of the week, or with individual baristas.

The survey would be able to measure customer satisfaction and give customers the ability to voice their complaints or provide constructive criticism about aspects of the service. Compiling this data and analyzing it, this could be cleaned up and visualized in a Pareto chart similar to Figure 6 to identify key modes of failure in the service.

Monitoring the number of standing or sitting customers provides a measurement of how many people may be waiting for an order or waiting for a seat to open up. If it is assumed that all customers standing are in one of those two groups, a measurement of how many customers are waiting can be made. Combining this with the last suggestion of measuring table and seat availability gives a full-bodied understanding of what seats and tables are covered by customers, and which tables and seats are undesirable to customers. This information would assist in rearranging seating to a more optimal orientation that could improve the customer experience.

SUMMARY/CONCLUSION

As local Scout Coffee is a convenient place to hang out and study, the coffee shop struggles with customer retention. The one factor contributing to poor customer retention is in particular to unavailable seating. To dive further into this problem, we first conducted a survey for Scout customers to give their input on their experience at the coffee shop and seating availability. Our team then gathered data on multiple days at different times to manually count how many seats and tables were occupied. Using statistical software JMP and Minitab to analyze the data, we were able to conclude that both time and type of day had an effect on the number of customers; most people desire to drink coffee in the mornings and study on the weekends, whereas people tend to be busier and unable to go to coffee shops on the weekdays after the morning rush.

To improve customer retention, our solution is to improve the seating arrangement of Scout Coffee. By removing the excess retail space inside the shop, additional seating is possible. Although the exterior seating is limited to changes, rearranging interior seating is the best solution.

Further actions to be taken are routine customer surveys, additional direct observations, a time-to-serve counter and an optimized floor plan. These actions can be put in place to ensure and sustain the quality of Scout's customer service while preserving their top-tier reputation.

APPENDICES

Appendix A: ANOVA Output

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	3491.4252	1745.71	31.2882
Error	63	3515.0597	55.79	Prob > F
C. Total	65	7006.4848		<.0001*

Appendix A1. The ANOVA Output for this sample

Expanded Estimates

Nominal factors expanded to all levels

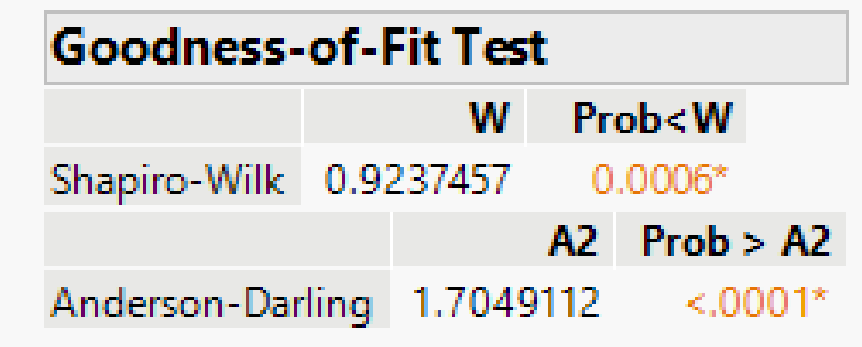
Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	35.300444	0.967406	36.49	<.0001*
Time of Day[Afternoon]	-5.379748	0.922343	-5.83	<.0001*
Time of Day[Morning]	5.3797484	0.922343	5.83	<.0001*
Type of Day[Weekday]	-4.867415	0.966071	-5.04	<.0001*
Type of Day[Weekend]	4.8674149	0.966071	5.04	<.0001*

Appendix A2. The parameter estimates for the ANOVA expression

Prediction Expression

$$35.300444006 + \text{Match}(\text{Time of Day}, \text{"Afternoon"} \Rightarrow -5.379748397, \text{"Morning"} \Rightarrow 5.3797483966, \text{else} \Rightarrow .) + \text{Match}(\text{Type of Day}, \text{"Weekday"} \Rightarrow -4.867414899, \text{"Weekend"} \Rightarrow 4.8674148989, \text{else} \Rightarrow .)$$

Appendix A3. The prediction expression for estimating the number of customers



Goodness-of-Fit Test

	W	Prob<W
Shapiro-Wilk	0.9237457	0.0006*
	A2	**Prob > A2**
Anderson-Darling	1.7049112	<.0001*

Appendix A4. The normality test was used to determine that the data was not normally distributed