

# PROJECT ASSIGNMENT #1

## YELLEVATE CUSTOMER DISPUTE ANALYSIS

FEBRUARY 13, 2023 | BATCH 7 | GROUP 23



### GROUP MEMEBERS

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### PROBLEM

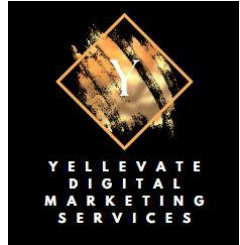
**Client disputes:** defined as clients expressing dissatisfaction with the company's services and refusing to pay for them.

Almost 20% of the disputes raised have resulted in a payment opt-out, which has led to an approximate 5% (in USD) annual loss in revenue.

### DATA ANALYSIS GOALS

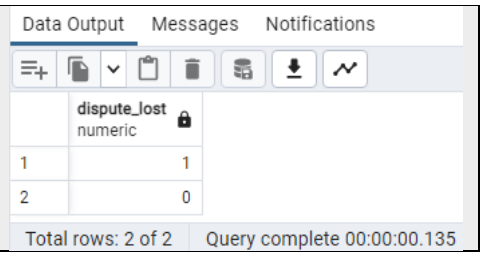
1. The processing time in which invoices are settled (average # of days rounded to a whole number).
2. The processing time for the company to settle disputes (average # of days rounded to a whole number).
3. Percentage of disputes received by the company that were lost (within two decimal places).
4. Percentage of revenue lost from disputes (within two decimal places).
5. The country where the company reached the highest losses from lost disputes (in USD).

# METHODOLOGY

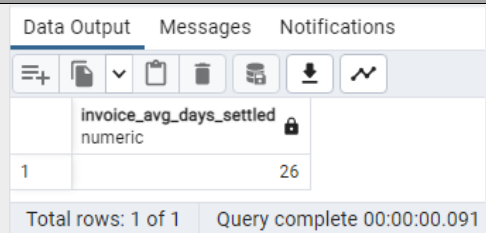
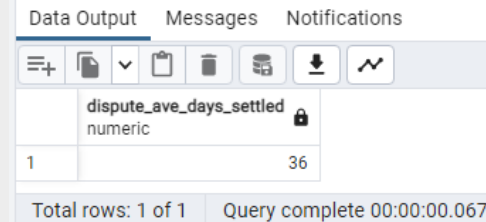
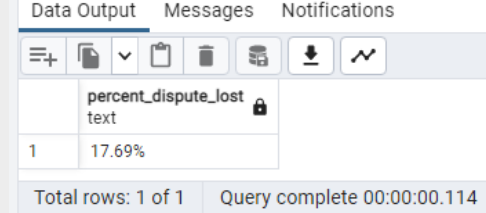
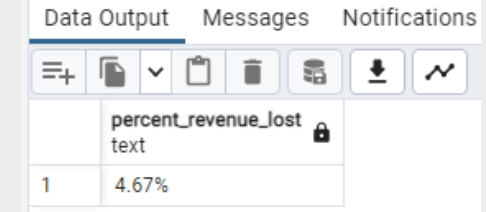
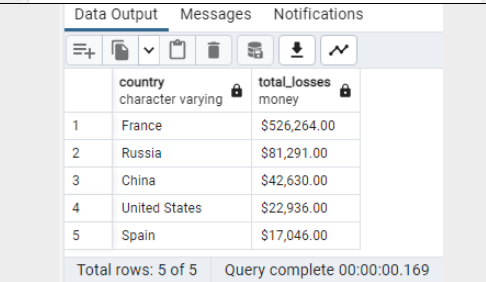


1. Identify the problems facing the business and come up with objectives that can solve them with data analysis.
2. Set data analysis goals according to these business objectives.
3. Conduct data analysis by loading a .csv file in SQL to perform the necessary data cleaning.

METHOD	STEPS / SQL QUERY	OUTPUT
a. Create a new database named yellevate	<i>In pgAdmin right-click databases &gt; create &gt; database... &gt; save</i>	
b. Create a new table named yellevate_invoices	<b>CREATE TABLE</b> yellevate_invoices (country <b>VARCHAR</b> , customer_id <b>VARCHAR</b> , invoice_number <b>NUMERIC</b> , invoice_date <b>DATE</b> , due_date <b>DATE</b> , invoice_amount_usd <b>NUMERIC</b> , disputed <b>NUMERIC</b> , dispute_lost <b>NUMERIC</b> , settled_date <b>DATE</b> , days_to_settled <b>INTEGER</b> , days_late <b>INTEGER</b> );	
c. Import dataset from CSV file	<b>COPY</b> yellevate_invoices <b>FROM</b> 'C:\GP1\yellevate_invoices.csv' <b>DELIMITER</b> ',' <b>CSV HEADER</b> ;	
d. Check if dataset from CSV was imported to the created table	<b>SELECT * FROM</b> yellevate_invoices;	
e. CHECK COUNTRY NAMES FOR ERRORS	<b>SELECT DISTINCT</b> (country) <b>FROM</b> yellevate_invoices;	
f. CHECK DISCOUNTED COLUMNS FOR ERRORS (VALUE SHOULD ONLY BE 1 OR 0)	<b>SELECT DISTINCT</b> (disputed) <b>FROM</b> yellevate_invoices;	

g. CHECK DISPUTE LOST COLUMNS FOR ERRORS ( VALUE SHOULD ONLY BE 1 OR 0)	<pre>SELECT DISTINCT(dispute_lost) FROM yellevate_invoices;</pre>	 <p>The screenshot shows a SQL query result with two rows. The first row has a value of 1 for dispute_lost, and the second row has a value of 0. The interface includes tabs for Data Output, Messages, and Notifications, and a status bar indicating 'Total rows: 2 of 2' and 'Query complete 00:00:00.135'.</p>
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#### 4. Answer the data analysis goals using SQL

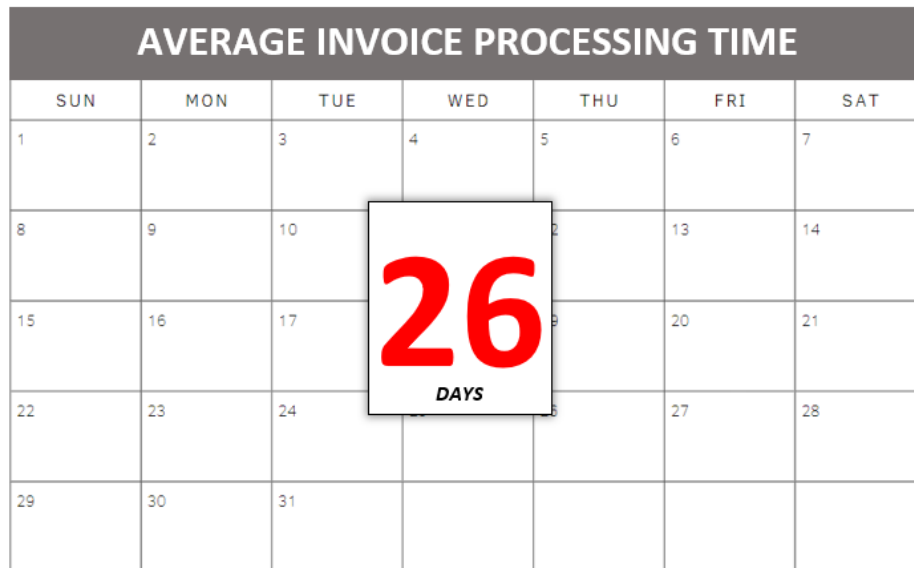
GOAL	SQL QUERY	OUTPUT
a. The processing time in which Invoices are settled (average # of days rounded to a whole number).	<pre>SELECT ROUND(AVG(days_to_settled)) AS invoice_avg_days_settled FROM yellevate_invoices;</pre>	 <p>The screenshot shows a SQL query result with one row. The value for invoice_avg_days_settled is 26. The interface includes tabs for Data Output, Messages, and Notifications, and a status bar indicating 'Total rows: 1 of 1' and 'Query complete 00:00:00.091'.</p>
b. The processing time for the company to settle disputes (average # of days rounded to a whole number).	<pre>SELECT ROUND(AVG(days_to_settled)) AS dispute_ave_days_settled FROM yellevate_invoices WHERE disputed = 1;</pre>	 <p>The screenshot shows a SQL query result with one row. The value for dispute_ave_days_settled is 36. The interface includes tabs for Data Output, Messages, and Notifications, and a status bar indicating 'Total rows: 1 of 1' and 'Query complete 00:00:00.067'.</p>
c. Percentage of disputes received by the company that were lost (within two decimal places).	<pre>SELECT (ROUND(100*( (SELECT SUM(dispute_lost) FROM yellevate_invoices WHERE dispute_lost = 1) / (SELECT SUM(disputed) FROM yellevate_invoices)),2))    '%' AS percent_dispute_lost;</pre>	 <p>The screenshot shows a SQL query result with one row. The value for percent_dispute_lost is 17.69%. The interface includes tabs for Data Output, Messages, and Notifications, and a status bar indicating 'Total rows: 1 of 1' and 'Query complete 00:00:00.114'.</p>
d. Percentage of revenue lost from disputes (within two decimal places).	<pre>SELECT (ROUND(100*( (SELECT SUM(invoice_amount_usd) FROM yellevate_invoices WHERE dispute_lost = 1) / (SELECT SUM(invoice_amount_usd) FROM yellevate_invoices)),2))    '%' AS percent_revenue_lost;</pre>	 <p>The screenshot shows a SQL query result with one row. The value for percent_revenue_lost is 4.67%. The interface includes tabs for Data Output, Messages, and Notifications, and a status bar indicating 'Total rows: 1 of 1' and 'Query complete 00:00:00.169'.</p>
e. The country where the company reached the highest losses from lost disputes (in USD).	<pre>SELECT country, SUM(invoice_amount_usd):: MONEY AS total_losses FROM yellevate_invoices WHERE dispute_lost = 1 GROUP BY country ORDER BY total_losses DESC;</pre>	 <p>The screenshot shows a SQL query result with five rows. The countries and their total losses are: France (\$26,264.00), Russia (\$81,291.00), China (\$42,630.00), United States (\$22,936.00), and Spain (\$17,046.00). The interface includes tabs for Data Output, Messages, and Notifications, and a status bar indicating 'Total rows: 5 of 5' and 'Query complete 00:00:00.169'.</p>

5. Export each generate data from SQL queries to MS EXCEL to further analyze then visualize the processed data.

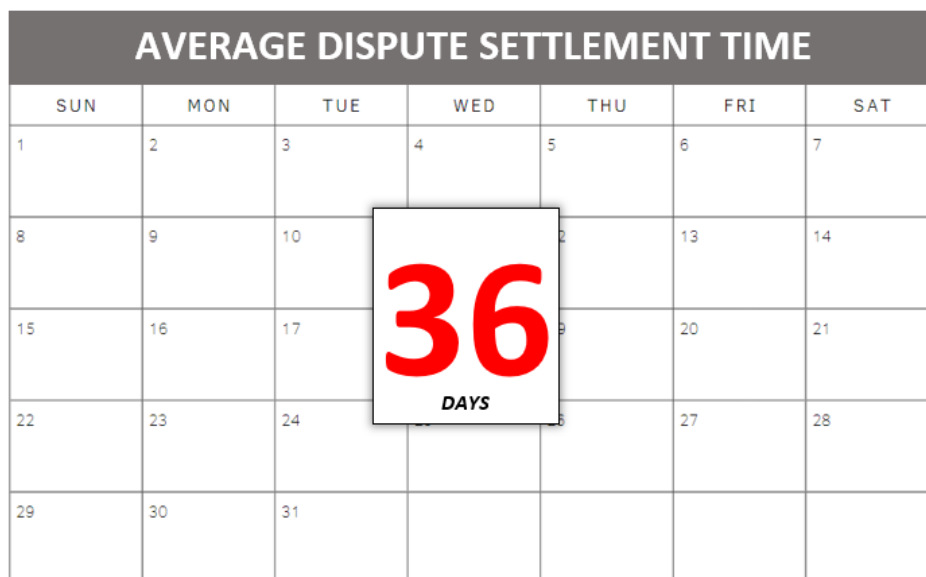
6. Provide insights and recommendations from the visualized data on actionable strategies to deal with disputes effectively.

## FINDINGS & INSIGHTS

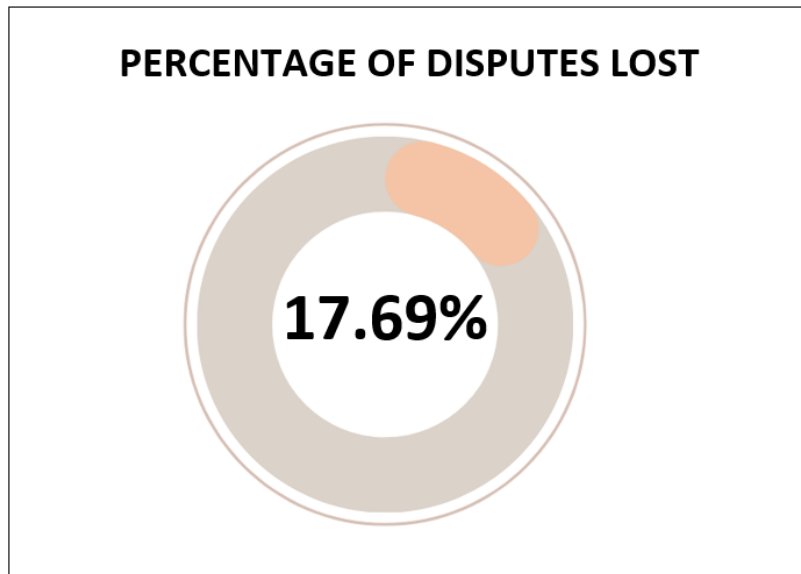
1. The processing time in which invoices are settled took an ***average of 26 days***.



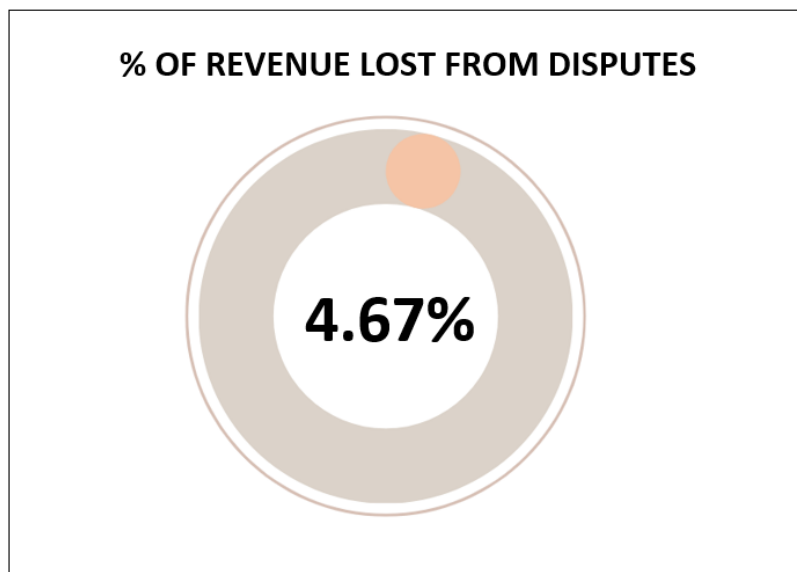
2. The processing time for the company to settle disputes took an ***average of 36 days***.



3. *101 disputes lost or 17.69% out of 571 total recorded disputes.*



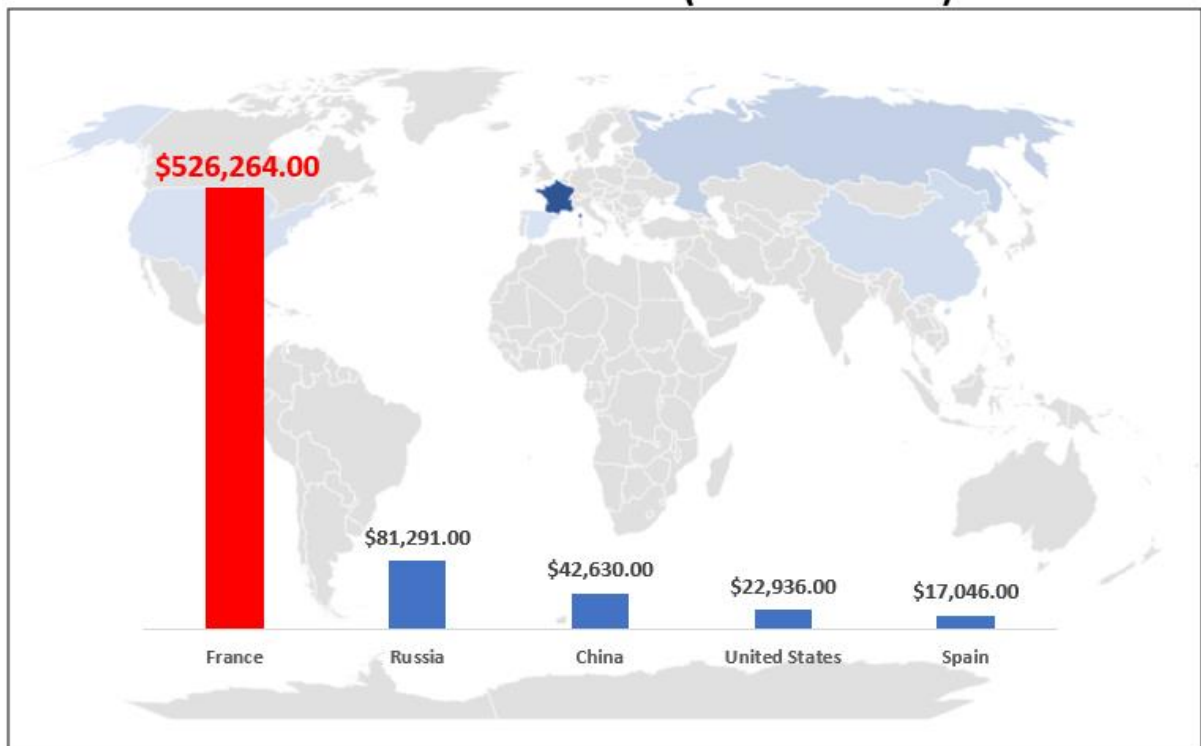
4. **\$ 690,167.00** or **4.67%** from total revenue of 14,770,318.00 were lost due to client disputes.



5. **France** has the highest loss recorded. Total losses reached **\$ 526,264.00**. This contributes to **76.25%** of the total disputes lost from all the countries that were analyzed.

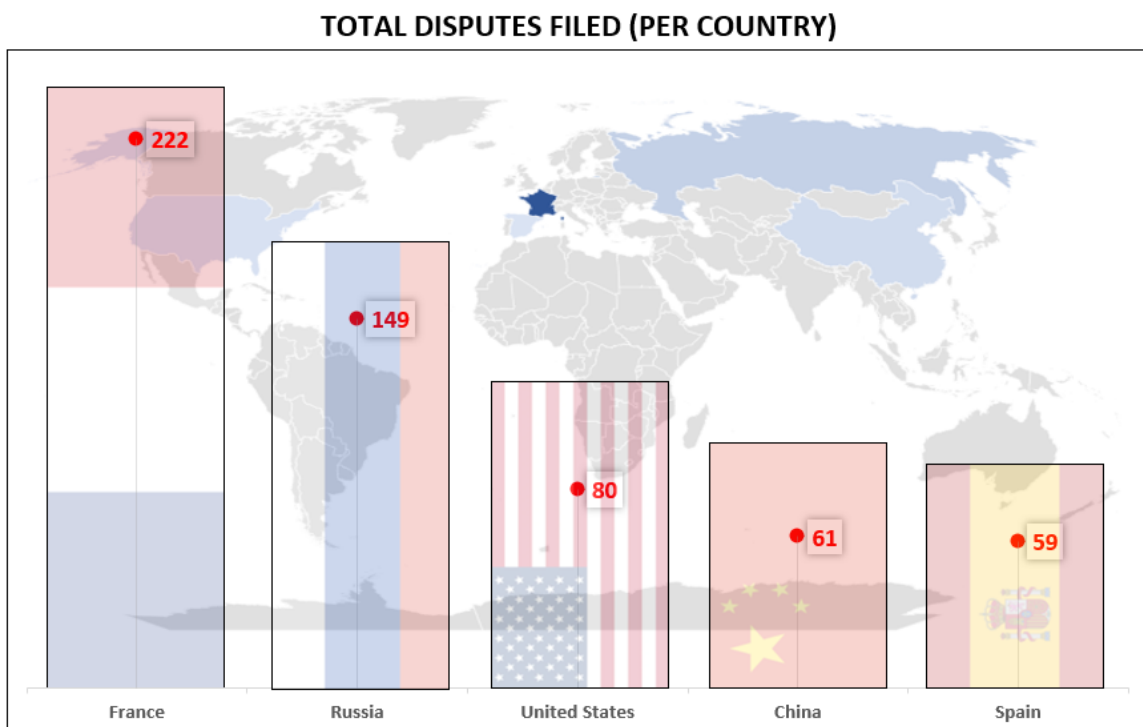
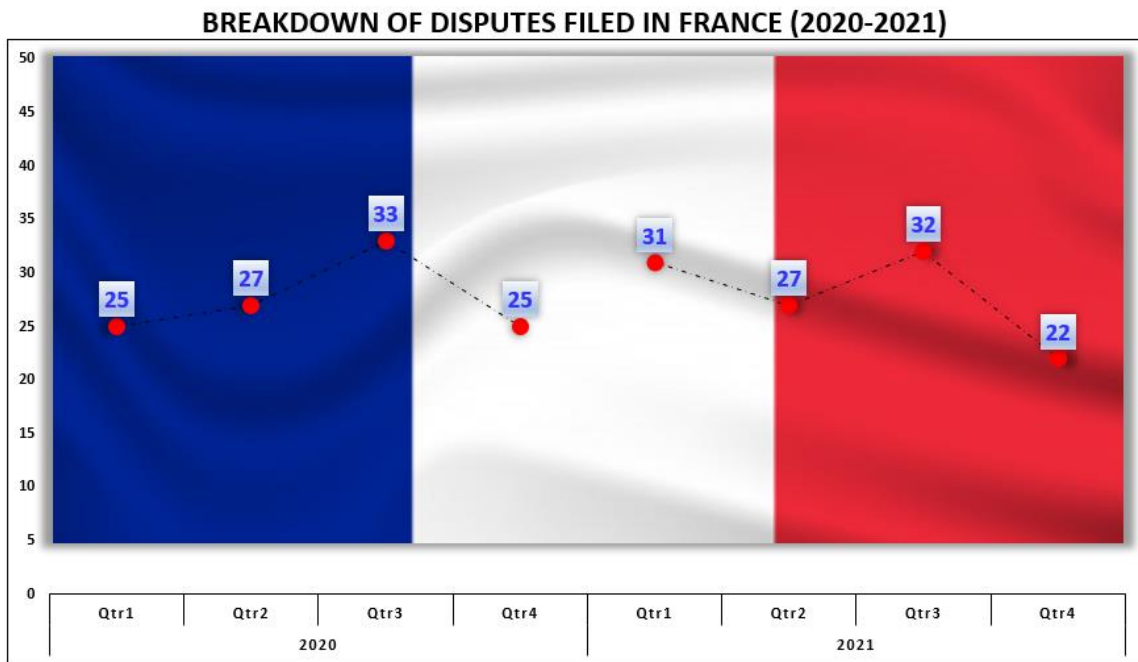
TOTAL DISPUTE LOSSES (all countries): **\$ 690,167.00**

### LOSSES FROM DISPUTES (PER COUNTRY)



5. Additionally, **France** has the highest losses recorded due to customer disputes. Total losses reached \$ **526,264.00** which contributes to **76.25%** of the total dispute losses from all countries combined.

TOTAL DISPUTE LOSSES (all countries): \$ **690,167.00**





# RECOMMENDATIONS



1. Review the existing contract agreement between Yellevate and its clients and come up with concrete legal (objective) accountability (that cannot be subjectively disputed) for customers who refuse to pay the charges. Consider a down-payment clause in the contract to reduce the losses from future disputes (if any).
2. Deploy field/satellite offices in the countries of the clients to be able to closely monitor and provide real-time customer support if/when needed. These offices will have the full staff roster (from HR, Customer Support, Lawyer(s), Finance, etc.) to handle all legal and banking work to reduce the turn-around time (in days) for the settlement of all invoices and to be able to work preemptively with any disputes filed.
3. Review the client's payment and dispute habits. Consider the companies right to refuse being hired by clients that have had a negative habit history.
4. Construct an internal process wherein all disputes received will have a comprehensive form/spreadsheet to be filled out (specifically the reason(s) for disputing) so that when there is more need for data to be analyzed, more insights and proper trend identification can be provided. This is to allow the company to make more informed decisions moving forward.
5. Conduct customer satisfaction surveys to gather more data and insight/feedback be able to analyze any areas for improvement (if any, at the point of the survey completion).

